EIRE

~~A. 2518~~

EIRE

AN ROINN SLÁINTE
Department of Health

NATIONAL NUTRITION SURVEY

Parts I-VII

COMPLETE REPORTS on DIETARY and CLINICAL SURVEYS

BRITISH MEDICAL ASSOCIATION LIBRARY
11 MAY 1954

DUBLIN:
PUBLISHED BY THE STATIONERY OFFICE

To be purchased directly from the
GOVERNMENT PUBLICATIONS SALE OFFICE,
G.P.O. ARCADE, DUBLIN
or through any Bookseller

Price: 12/6

1953

FOREWORD

The several sections of this Report have been published separately over the past few years. All the sections have here been brought together and published as a single volume for convenience of reference.

An Roinn Sláinte,
Meitheamh, 1953

LIBRARY OF THE BRITISH MEDICAL ASSOCIATION
PRESENTED BY THE EDITOR OF B.M.J.
CANCELLED

NATIONAL NUTRITION SURVEY

Part I

METHODS OF DIETARY SURVEY
AND
RESULTS FROM DUBLIN INVESTIGATION

BRITISH MEDICAL ASSOCIATION LIBRARY
11 MAY 1954
CANCELLED

DUBLIN:
PUBLISHED BY THE STATIONERY OFFICE

To be purchased directly from the
GOVERNMENT PUBLICATIONS SALE OFFICE
3-4 COLLEGE STREET, DUBLIN
or through any Bookseller

Price 2/-

FOREWORD

The aim of the National Nutrition Survey is to find out the dietary habits, etc., prevalent in Ireland, and at the same time to estimate the state of nutrition of representative samples of certain groups of Irish people. The present report is the first of a series of reports in which it is hoped to cover the various aspects of the survey. It deals with the general history of the survey, and presents the detailed results found in the dietary investigation carried out in Dublin City.

An Roinn Sláinte,
Meán Fómhair, 1948.

13191945

WELLCOME INSTITUTE
LIBRARY
Coll. welMOmec
Call
No. QU

NATIONAL NUTRITION SURVEY

DIETARY SURVEY—DUBLIN SAMPLE.

It is now generally recognised that there is a direct relationship between good nutrition and health, and that under-feeding is reflected in a lowering of health and well-being. It is further accepted that the nutrition of groups of people who are generally regarded as well-fed can be modified by food to produce marked improvement in health. Hence, a food policy to ensure proper nutrition for all sections of the population must be considered as an integral part of the general policy of public health. Moreover, such a food policy will have important bearings on the policy of food production, because it requires that the proper foods are forthcoming in proper amounts.

History.

In 1944, the question arose of finding out what was the level of nutrition of the population of Ireland, and, pari passu with this investigation, what were the actual amounts of the various foods eaten in this country, what these amounts represented when compared with known requirements, and what were the outstanding food habits of the people.

The then Minister for Local Government and Public Health therefore consulted the Medical Research Council of Ireland and this body, through its Nutrition Committee, considered how the required information could best be obtained. A number of alternative proposals was made, and eventually it was agreed that a dietary survey and a clinical assessment of the state of nutrition should be made of the various sections of the population, the carrying out of the work being the responsibility of the Department of Local Government and Public Health.

Clinical Assessment.

As regards the clinical survey it must suffice here to say that this entailed a physical and anthropometric examination specifically directed to the nutritional state of certain vulnerable groups of the population, e.g., school-children, expectant and nursing mothers, and adolescents. This work is at present being carried out by a Medical Officer specially appointed and trained for the purpose.

Dietary Survey—Sampling.

As to the dietary survey, a sample was taken by the Statistics Branch of the Department of Industry and Commerce which comprised between 2,500 and 3,000 families, this figure representing one family to about every 1,000 persons of the whole population. These were divided fairly evenly between urban and rural areas, so as to cover fully the groups considered most important from the point of view of their proportion to the whole population. The sample was made up as follows :—

(1) Families living in Dublin City (500 families).

(2) Families living in towns whose populations were 10,000 or over (250 families).

(3) Families living in towns whose populations were under 10,000 (500 families).

(4) Farming families (1,000 families).

(5) Families of agricultural labourers (150 families) and

(6) Families living in the old " Congested Districts " (200 families).

The present report refers only to the 500 families living in Dublin City, and therefore the description of methods and sampling which follows does not refer to other areas. Further results from other parts of the country (large towns, etc.) will be put forward later.

Dublin Sample.

In Dublin City, the sample of 500 families was selected as representing a proportion of roughly one family per 1,000 persons of the population of the City, or between 4 and 5 persons per 1,000 persons. The selection of families was not, however, dispersed throughout the entire city, but was confined to four wards, viz., Mountjoy, Rotunda, Crumlin and Drumcondra, from each of which 125 families were selected. The Mountjoy and Rotunda areas were selected as being typical of the slum population, Crumlin of the artisan population, and Drumcondra of the (lower) middle-class population. The sample was, therefore, weighted in favour of the slum areas, in order to ensure that an adequate representation of the slum population (where nutritional standards might be expected to be lowest), would be included. It must be pointed out, however, that the classification of families (into slum, artisan and middle-class) used in the tables is independent of the ward division. It is based rather on the dwelling inhabited by the family, and accordingly, there would be, for instance, some middle-class families in the Mountjoy and Rotunda wards, some slum families in the Drumcondra ward, and so on. It is shown in the Appendix that the average intake of nutriments, as shown in the tables, can be accepted as representative for Dublin as a whole.

Workers.

A team of investigators was recruited who collected the data in the field ; the selection of this personnel was made with care by a selection board specially set up for the purpose. The board examined the qualifications of the candidates, paying particular attention to personality, tact and general suitability for this highly specialized work. Ten investigators were eventually selected from amongst a large number of qualified women candidates. These investigators underwent a period of three months preliminary training in Britain, where they were afforded an opportunity of observing and taking part in dietary surveys being carried out there ; this was made possible by the good offices of Drs. E. R. Bransby and H. E. Magee of the Ministry of Health. It was considered that the training given to the field-workers was sufficient to make them competent to carry out the survey.

Method.

There are certain technical aspects of the methods used which need to be explained in some detail for the correct interpretation of the tables now published. The survey began in Dublin in April, 1946, and was completed in August, 1946. In the method of survey adopted a record was obtained of the food used by the family as a whole. Briefly, the technique was as follows :

> The investigator weighed and measured all food in the house at the first visit, and provided the housewife with a form on which the latter noted the amounts and costs of all the foodstuffs brought into the house, and the foods used at each meal, during the period of survey (in our case one week). At subsequent intermediate visits during the week, the investigator called on the housewife and checked the form with her.
>
> Exactly one week after the first visit, the investigator called again on the housewife, and again weighed and measured all food remaining in the house. From the data thus collected, an accurate count of the exact quantity of each individual food used by the family during the week of the survey, and its cost, could be made. In addition to the amounts and costs of food, data were also collected on the number, age, sex and occupation of the members of the family, expenditure on items other than food, family income, and the number of rooms occupied by the family. It may be stated at once that the income and expenditure data collected in this way were, on the whole, unsatisfactory, and could not be used in the way intended. It was found possible, however, to use the income data to the limited extent of dividing the sample into broad " Income per head " groups, though even this division has to be regarded with some reserve on account of the unreliability of the income figures. The expenditure on food, however, may be taken as accurate, having been arrived at by systematic costing of all articles of food brought into the house during the survey week. Incidentally, homegrown food was included with bought food in this calculation, being reckoned at the current local retail price.

Waste.

The information collected as to food relates, as has been said, to the actual amount of food used in the home during the week of the survey. This included food which was eaten and that which was wasted. In calculating the food values of the diets, allowance was made for the inedible parts of the food, such as bones, potato peelings and the outer leaves of vegetables, but not for foods which could have been eaten but which were in fact wasted, such as stale bread, sour milk and food left uneaten on the plate. There were no data on which to base an estimate of this last group, but experience suggests that it is not significant in comparison to the diet as a whole.

" Diet-heads."

An attempt was also made to allow for meals eaten away from home by members of the family, and for meals supplied in the home to visitors. To do this, " main " meals (dinner, high tea, etc.) were given an arbitrary value of 4 per cent of the total weekly consumption value of all meals, and " light " meals (simple breakfast, plain tea, etc.) a value of 2 per cent. Allowance was then made, on the basis of these figures, for meals eaten out by members of the family and supplied to visitors. Thus, if a person in the family had his dinner out on two occasions during the survey week, 8 per cent. of his eating capacity for the week was subtracted from his original 100 per cent., and he became 92 per cent. of a person for the purpose of assessing what he ate in the home ; more simply he became 0.92 of a " diet-head." Similarly if a visitor, or a number of visitors between them, were supplied with, say, dinner once and tea once during the survey week, the figure of 6 per cent. (i.e., dinner 4 per cent., tea 2 per cent.) or 0.6 of a " diet-head " was *added* to the number of diet-heads in the family as having helped to dispose of the measured supply of food for the week. Finally, the family expenditure on food and the amounts of foods used, were divided in each case not by the number of persons in the house, but by that number adjusted as indicated above to " diet-heads." The results gave the amount of money spent on food, and the amount of food used in the house for the week per " diet-head." On the whole, it was found that there was but little difference between the numbers of " heads " and " diet-heads."

Calculation of Nutrients in the Diet.

The nutrients contained in the diet of each group were calculated by converting the total weight of each food used (meat, bread, etc.) to its nutrient equivalents by means of tables of Food Composition. This had the effect of bringing different foods (butter, vegetables, etc.) to a common basis, that is, it made it possible to add together the like nutrients (protein, calcium, etc.) of different foods. The table used was based on " Nutritive Values of Wartime Foods," (Medical Research Council, War Memorandum No. 14, H.M.S.O. 1945), together with a number of analyses made specifically for the survey, and values for Riboflavin and Niacin included in the relevant literature.

Calculation of Nutrient Requirements.

The nutrient requirements of the various groups were calculated on the basis of the recommendations of the League of Nations Technical Commission on Nutrition (1936 and 1938), as worked out by George and Magee, (1) and (2), modified by the inclusion of figures in respect of Niacin and Riboflavin based on the National Research Council's (U.S.A.) restricted scale (1943). The standards taken are shown in Table 7. The calculation of the nutrient requirements of each separate group took cognizance of the varying age, sex and occupation-structure of the group, so that if an undue number of any particular class, such as babies, existed in a particular group, this was allowed for in estimating the requirements of the group as a whole. The requirements of calories, etc., in adults were calculated according to the actual occupations of the persons concerned, i.e., whether the occupation was sedentary, or entailed medium or heavy physical work, and, in the case of female adults, whether a condition of pregnancy or lactation existed.

Nutritional Adequacy of the diets.

When the total requirements of any group had been calculated in this way and the actual intake had been worked out, it was a simple matter, from these two sets of figures, to state the intake as a percentage of the requirements (Tables 9A, 9B, 9C).

It will be observed that Tables 9A, 9B and 9C, which state, in the case of each group named, the percentage which the actual intake of nutrients bears to the recognised requirements of the group, do not purport to indicate the adequacy or otherwise of individual intakes within the groups. For example, where the table shows, in a particular group, that the intake of a nutrient amounted to 104 per cent. of the calculated requirement of the group, as in the case of protein in the lowest-income Slum group of table 9A, no conclusion can be drawn as to the individuals making up the group. It is certain that within the group there are individuals receiving less than 104 per cent. of their requirements of protein, and that these are counterbalanced by others who receive more than 104 per cent. Similarly, it is certain that even the requirements of like individuals vary considerably, and it is, therefore, only when averages for comparatively large numbers of persons have been dealt with that a true picture of the position will emerge.

In presenting the various tables, the data for all groups in which the number of families was less than 10 have been omitted. Similarly in Tables 10 and 11, it was decided not to prepare percentages where the number of meals in question did not total at least 70 (i.e., where less than 10 persons were involved, because 10 persons between them would account for 70 breakfasts, dinners, etc., in a week).

Reliability of Results.

The question may arise that, during the period of the survey, the tendency of the housewife might be to vary her usual food habits so as to show them either to advantage or to disadvantage, thus producing an over- or under-statement of the normal conditions. It is at once conceded that the carrying out of a survey may have a disturbing effect on the normal domestic routine. The investigators made a point of impressing on the housewives the importance of following their normal practices. Any such artificial change would very soon become apparent to an experienced investigator in the course of her visits, and would, in any case, be very difficult to sustain during the whole of a survey week.

The general trend of the results seems to indicate that such an artificial change did not take place, for it is evident that as between the various groups of income, family size, etc., as well as between comparable groups in the various social classes, the variations observed are gradual and consistent.

As a check, it was possible to compare, for some foods, the consumptions found in the survey with corresponding figures obtained from other sources. Statistics available to the Departments of Agriculture and Industry and Commerce indicate that the consumption of milk in Dublin in 1946 averaged about 4.5–5.0 pints per head per week, while the figure derived from the survey stood at 4.8 pints. Similarly the survey figure for potatoes was 82.7 ozs. per head per week, while that derived from the quantities of potatoes delivered to the Dublin markets in 1946 was 75 ozs. per head per week ; this last figure was considered by the Department of Industry and Commerce to be somewhat understated, and made no allowance for home-grown potatoes. Sales of bread in Dublin in 1946 were calculated to amount to 89 ozs. per head per week, the corresponding figure from the survey being 87.7 ozs.

Moreover, the consumption of the rationed foods (butter and sugar) reported from the survey corresponded closely with the amounts of the rations.

The satisfactory agreement between the statistics from the various sources and the figures from the survey leaves little doubt that the latter were a true picture of the conditions which prevailed at the time.

Tables.

The results of the survey are presented under three main heads, viz. :—

(1) Consumption of and expenditure on various foods or groups of foods (Tables 3, 4, 5 and 6).

(2) Intake of nutrients, and the percentage which this intake represents of standard nutrient requirements (Tables 8 and 9).

and

(3) Types of meals eaten (Tables 10 and 11).

To round off the picture, tables 2A, 2B and 2C show the actual constitution of the various groups into which the sample was divided, and tables 12A, 12B and 12C show the housing, etc., conditions under which the people making up the groups lived.

A special division was made to show the conditions of certain peculiarly situated groups, viz., unemployed persons, widows with pensions, and old-age pensioners, but these results are not yet available and will be published later.

EXPLANATORY NOTES.

Tables 2A, 2B and 2C show the constitution of all the families covered by the inquiry, classified as indicated, firstly according to income, secondly according to expenditure on food, and lastly according to size of family.

The total number of families covered amounted to 500, of which 188 lived in houses classed as " slum " houses, 210 in " artisan " houses and 102 in " middle-class " houses. The number of individuals was 2,423, divided as above into 754 living in " slum " houses, 1,191 in " artisan " houses and 478 in " middle-class " houses. The average size of the three classes of family is 4.0, 5.7 and 4.7 respectively.

There is an apparent discrepancy in Table 2C in that the "total number of families," when totalled across the various columns, does not always amount to the figure shown in the last column, which represents the total number of families in the particular " type of family." This is due to the operation of the rule mentioned earlier than where any group of families amounted to less than 10, the group was discarded as unrepresentative. Thus the " total number of families " in the Artisan class is shown as 210, whereas the sum of the four subdivided columns amounts only to 202, 8 having been discarded.

Tables 3A, 3B and 3C show the consumption per diet-head weekly of named groups of foodstuffs, the families being classified respectively according to income, food expenditure and family size.

In the income table (3A), the more or less steady rise in consumption of practically all groups as the income increases is well marked. Bread and potatoes, as might be expected, are exceptions. In the case of fruit, the rate of increase is rapid as the income increases. The effect of income on the consumption of such vitally important foods as milk, eggs, meat and vegetables is shown to be strong. It is of interest that the consumption of cheese, which is a most valuable food, is low and does not increase much with income. As regards fats, butter was rationed at 6 ozs. per head per week during the time of the survey, and margarine was off the market altogether for the greater part of that time, while other fats such as suet, etc., were difficult to obtain, so that the increase in consumption with income is not very noticeable.

In the food expenditure table (3B), naturally as the amount spent on food goes up from one group to another, more of the various foods are consumed. What is of great interest here is the manner in which increasing amounts spent on food are expended. For instance, with increasing expenditure on foods, there are steady increases in the amounts of milk, eggs, meat, fish, vegetables and fruit consumed. Once again, the consumption of cheese is low and does not greatly increase with increasing expenditure on food.

Table 3C shows the effect of size of family on the consumption of different foods, and again the trend is as might be expected, practically all items showing decreasing consumption as the number of persons in the family increases.

In all three tables, the bottom section shows the results for all the Dublin families of the survey taken as a whole, that is, without subdivision into slum, artisan and middle-class types. The last (right hand) column of this section shows the average consumption per diet-head per week for all types, taken as a whole. Thus it was found that for every diet-head (which may be taken as practically equivalent to a person), the consumption of milk, for example, was 4.8 pints per week, of eggs 4.0 per week, of fats 9.6 ozs. per week, of meat 33.3 ozs. per week and so on. It is notable that the amount of cheese consumed was low at 1.2 ozs. per week. All the families examined have been included in this "all types" section of the tables, even although groups of families of less than 10 in number have been omitted in the upper part of the tables where the sample has been classified according to the type of dwelling (slum, artisan or middle-class). Although 4.8 pints per head per week is the average amount of milk consumed by the whole sample, it is seen that very much smaller quantities are consumed in some of the groups into which the whole sample has been divided. For example, table 3A shows that in Artisan families, where the income is below 10s., the consumption of milk falls as low as 2.7 pints per head per week.

Tables 4A, 4B and 4C correspond to table 3B and show the consumption in slum, artisan and middle-class families respectively. Here the commodities are shown separately and are not grouped together as in the previous tables. This detailed classification has been presented only where the families are classified according to expenditure on food.

As regards flour and bread, these two have been presented separately in the detailed table whereas in the grouped table they were joined together and both expressed as flour. This last procedure entailed reducing the bread figure to express it as flour, because of course a 4 lb. loaf, for instance, does not contain 4 lbs. of flour. In the case of soda- and fancy-bread the figure for bread had to be further reduced to express it as flour, because the milk contained in it had to be extracted and added to the figure for "milk" in the grouped table. Thus the figures for these items in the two tables are not capable of comparison. It is to be noted that certain items of consumption which have no food value are not included at all in this set of tables, but are taken into consideration in the later tables, where the costs of the foodstuffs are shown. This group includes tea, coffee, salt, pepper, etc.

It was not possible to include in the survey such items as stout and sweets, which would not be allowed for by the "diet-head" device explained earlier. These, if counted, would have produced a very small increase in the calorie consumption.

Tables 5A, 5B and 5C correspond to tables 3A, 3B and 3C but are designed to show the consumption of the various groups of foods in terms of money. Here again, the whole sample is first divided up in each table according to the type of family (slum, artisan and middle-class), and the bottom section gives the picture for all the families as a whole.

In Table 5A the expenditure per head on food in the under 10s. income group seems rather high at 7s. 8d., 8s. 11d. and 8s. 8d. It has already been indicated that all the "income" figures should be viewed with suspicion, and it seems certain that these results have arisen from under-statement of income. The figures themselves are correct but probably the limit of income (under 10s.) is too low.

It appears from the table that as between the three types of family mentioned, there is a steady rise from one to the other in expenditure on such important items as milk, eggs, meat, vegetables and fruit.

The last right-hand column of the bottom section gives at a glance the overall average expenditure per diet-head on the various foods of the 500 Dublin families examined. The major item or the item on which the greatest proportion of money is spent is meat, accounting as it does for about 28 per cent. of the total. Flour and bread together account for 14 per cent., and milk for just over 10 per cent. The expenditure on cheese is seen to be insignificant.

Tables 6A, 6B and 6C (which correspond to tables 4A, 4B and 4C), represent the detailed presentation of table 5B, in that the expenditures are shown for each single commodity and not for the commodities grouped together as in table 5B. Again the detailed table is presented only where the classification of the families is according to expenditure on food.

It may be noted that the total amount of money shown in each detailed table does not tally exactly with the corresponding total in each section of the grouped table. This is because in the detailed table the calculation was made to the nearest penny, so that it would only be by chance that an exact coincidence of the amounts in the two tables would occur.

Certain items are included in these detailed tables which were not so included in the corresponding tables giving quantities of foods consumed (tables 4A, 4B and 4C). These are the items having no food value but costing money nevertheless, such as tea and coffee, flavourings, salt, pepper, etc.

In the two sets (consumption and expenditure) of detailed tables, the symbol "—" means none, and "0.0" means an insignificant amount.

In order to determine what percentage of their requirements the persons in each group were receiving, it was necessary to produce (*a*) tables showing the actual intake (in terms of the various nutrients) of the different groups of families and (*b*) tables showing the requirements of the same groups as calculated on the basis of the standards recommended by the League of Nations Commission (shown in table 7).

One of these intake tables, namely that relating to families classified according to food expenditure per diet-head, is reproduced as Table 8. It was not thought necessary to reproduce the other two intake classifications, namely, by income and by size of family; intake figures do not of themselves indicate whether a given intake is or is not sufficient unless related to figures of requirements. Nor was it thought necessary to reproduce any of the requirement tables.

The results of the comparison, on a percentage basis, of the intake with requirement figures are shown in tables 9A, 9B and 9C.

Thus in Table 9A, where the families are classified according to income, the percentage of requirement of practically every nutrient goes up, as might be expected, with income, but it is especially satisfactory to note that an adequate intake (i.e., 100 per cent. or over) is recorded in nearly every instance. The main exception is calcium, where the intake reaches 100 per cent. of the specified standard of requirement only in the upper income groups. In the lowest income group of the slum families, for instance, the calcium intake is only 51 per cent. of requirements. In slum families as a whole it is 77 per cent., and in all the Dublin families taken together, it is 87 per cent. It appears to be completely satisfactory only in those families whose income is over 20s. per head per week, and not even in all of these.

Table 9B gives the nutrient intake (expressed as a percentage of requirements) of the Dublin families when classified according to expenditure on food. As already explained, these figures are more dependable than those of Table 9A for the reason that the food expenditure was arrived at by actual costing of the foods known to have been used. Here a similar trend of the figures is seen, and again a completely adequate intake of calcium appears to be reached only in families in which 15s. or more is spent on food per diet-head per week. Two points deserve mention in connection with calcium intakes. During June, 1946, two months after the survey began, it became the practice to incorporate acid calcium phosphate with bakers' flour, thus providing a fortification of bread with calcium. This factor has been allowed for in making the calculations, and means that if the same consumption of bread obtains now as at the time of the survey, the present intake of calcium from that source is somewhat higher now than it was then, because for about half the survey period, bakers' bread was not fortified with calcium as it has been since. The second point is that with the seasonal shortage of milk, which occurs in Dublin in the winter months, the level of calcium intake must be lower at that time, milk being the principal source of calcium in most diets.

The protein and calorie requirements, even of the lowest food expenditure groups of the families surveyed, seem to be more or less satisfactorily met, but as has already been stated in the introduction, there are undoubtedly families hidden in all the results whose intake of nutrients is seriously lower than the tabulated figures indicate. Such exceptions are counterbalanced by others receiving more than the tabulated figures, and this point is brought out clearly in the figures given at the foot of table 9B. The slum families as a whole show a 29 per cent. excess of protein intake over requirements, and the Dublin families as a whole a 33 per cent. excess.

A similar excess of intake over estimated requirements is evident in Table 9C where the families have been classified according to the number of persons in the family.

In all three tables, the Vitamin A figure is surprisingly high and satisfactory, and is largely accounted for by the fact of the survey having taken place during the late spring and summer. At this time more Vitamin A-bearing foods are normally eaten than in winter, and such a food as milk actually contains more Vitamin A than in winter.

The high intake of iron depended upon the large consumption of high extraction (90 per cent.) bread, and of meat, and the same is true of the intake of Vitamin B1. As regards iron derived from bread, however, it seems likely that by no means all such iron is available to the nutrition of the individual.

The figures for riboflavin—mainly derived from eggs and dairy produce and from certain meats, especially liver—are, on the whole, very satisfactory.

The intake of niacin is seen to be high in every group. Its principal sources in ordinary diets are meat, and bread made from flour of high extraction.

The figure for Vitamin C is also high, but, as in the case of Vitamin A, it is to be noted that the summer season would affect it favourably, Vitamin C occurring mainly in vegetable foodstuffs.

On the whole, then, the nutrient intake of the Dublin families was satisfactory, except that some of the groups of families were deficient in calcium. As already explained, this deficiency may be less now on account of the fortification of bakers' flour. An increase in the consumption of milk and cheese would go far to remedy the defect.

Tables 10A, 10B and 10C are designed to show the percentage frequency of " bread and spread " or " drink alone " meals versus " cooked " meals, or roughly " bad " against " good " meals. The tables are not exhaustive because other types of meals (cereals, cake, etc.) have not been counted, so that the combined percentages of any one group need not reach 100.

The general trend is that in the lower income and food expenditure groups, there was a high percentage of the poorer type of meal—sometimes more than 50 per cent. of the total meals for the week—and that this percentage fell with rising income. Conversely, it is seen that there was a more or less steady rise in the percentage of cooked or better type meals with rising income and food expenditure.

It seems that, whatever the nutritive value of the meals as seen from tables 9A, 9B and 9C, the families of lower income groups and lower food expenditure groups were receiving a monotonous diet with great lack of variety. This is possible enough as long as such a foodstuff as bread was unrationed.

Tables 11A, 11B and 11C show the detailed results of analysis of records made by the housewives of the meals eaten by the various members of the families. These tables are presented only in respect of the sample classified according to expenditure on food, and give the figures for slum, artisan and middle-class families respectively.

The persons involved have been divided into the three age-groups specified. The analysis is intended to show the food habits of the families of the various groups of food expenditure.

The meals were grouped as indicated in the column headed " Type of Meal." " Bread and Spread " has the same meaning as in Tables 10A, 10B and 10C.

" With(out) " means with or without.

" Cereals " means porridge, cornflakes, etc.

" Cooked protein " means eggs, bacon, meat, etc.

The other names are used in their commonly understood meanings.

Breakfast—a simple meal of milk drink or bread and spread accounted for 57 per cent. of all breakfasts in the 3–14 years age group of the slum portion of the families, with cereals and cooked protein next at 20 per cent. each. In the artisan group, these figures were 41 per cent., 34 per cent and 20 per cent. respectively, and in the middle-class group 15 per cent., 37 per cent. and 23 per cent.—in this last group, 20 per cent. in addition had breakfast consisting of cereals with cooked protein—say porridge and an egg.

Similar trends are shown in the age-group 15–19 years; in this group the percentages taking the simple bread and spread breakfast ran from 56 per cent. in the slum portion to 18 per cent. in the middle-class, the plain cereals breakfast stood at 17 per cent. in the slum portion, and 16 per cent. and 15 per cent. in the artisan and middle-class portions respectively. The cooked breakfast was taken by 26 per cent. in the slum portion, 33 per cent. in the artisan, and 45 per cent. in the middle-class.

In persons over 20 years, the bread and spread breakfast ran from 54 per cent. in the slum sample to 25 per cent. in the middle-class, and the cooked breakfast from 33 per cent. in the slum to 44 per cent. in the artisan and 36 per cent. in the middle-class.

In general, the trend showed an improvement in the type of breakfast (*a*) with increasing expenditure on food and (*b*) with a rise in the social scale.

Dinner—the simple bread and spread type of meal (e.g., tea with bread and butter) was not common for dinner—the highest percentage consumption (14 per cent.) occurred amongst the 15–19 years group in the slum sample, but the consumption by this group as a whole was 8 per cent.

A cooked dinner of some sort was extremely common, and a cooked dinner with either bread and butter or a pudding the commonest of all.

Thus where the bread and spread type of dinner ran from 14 per cent. in one group mentioned (15–19 years in slum) to 0 in many other groups, the cooked dinner with either bread and spread or a pudding was at its lowest at 65 per cent. in children 3–14 years living in slums, and reached 92 per cent. in the 15–19 years age-group living in middle-class houses.

Again the trend towards the better type of dinner was steady as food expenditure increased and also as the social grade went up.

Tea—here the bread and spread type of meal was the commonest in the slum houses (from 18 per cent. to 73 per cent., but average about 57 per cent. to 61 per cent.); in artisan houses, this type of meal ran from 9 per cent. to 66 per cent. (average 34 per cent. to 47 per cent.) and in middle-class houses from 4 per cent. to 59 per cent. (average 4 per cent to 19 per cent). Conversely, a cooked meal was taken by 20 per cent. to 26 per cent. of persons living in slum houses, by 26 per cent. to 37 per cent. of those in artisan houses, and by 44 per cent. to 47 per cent. of persons in middle-class houses.

Supper—here, for completeness' sake, a count was taken of those who had no meal. "No meal" was included with "other" meals in the case of breakfast, dinner and tea, but was in any case insignificant. It was highest at 1.9 per cent. in the case of tea taken by persons spending over 20s. per diet-head per week and living in middle-class houses, and in the overwhelming majority of cases did not arise at all.

The percentages of those having no supper varied from 45 per cent. in middle-class children aged 3–14 years to 11 per cent. in young people of the same class aged 15–19 years. All the younger children, as might be expected, with a few exceptions showed a high percentage of " no meals " for supper.

Much the commonest type of supper was of the simple milk-drink or bread and spread variety—throughout the whole sample it accounted for anything from 40 per cent. to 66 per cent. of all suppers.

Other types of supper were inconsiderable.

Taking the sample by age-groups, it may be said that in the 3–14 years old children the commonest breakfast was of the bread and spread type in slum and artisan children, with a cereal or cooked breakfast predominating in middle-class children.

At dinner, the commonest meal was of cooked protein, with or without various additions such as vegetables or pudding, and this applied throughout all classes.

At tea, the commonest type was bread and spread in slum and artisan children, and a cooked meal in middle-class children.

At supper the commonest meal was bread and spread in all classes.

In the 15–19 years age-group, the most usual breakfast was of the simple type in slum and artisan houses, but of the cooked type in middle-class houses.

Their dinner again was a cooked meal with or without additions, and any other meal was inconsiderable in its incidence.

The tea meal was predominantly of the simple type in the slum and artisan houses, but was cooked in the middle-class houses.

Suppers were overwhelmingly of the simple type throughout.

In the age-group 20 years and over, the principal breakfast was of the simple type only in the slum house, whereas in the other two classes the cooked meal predominated.

For dinner, the cooked meal was again the commonest in all classes, while tea showed the same trend as breakfast.

Suppers were again outstandingly of the simple type throughout the three classes.

Consumption of Milk.

The levels of milk consumption in families of varying sizes are shown in table 3C, and these can be compared with the requirements of milk recommended by various authoritative bodies. The Technical Commission of the League of Nations recommended (3) that expectant and nursing mothers should have about 2 pints of milk daily, and that a comparatively large quantity should be provided for infants, children and adolescents; the Advisory Committee on Nutrition, Ministry of Health (4) stated that " the desirable amount of milk is, for children from 1 to 2 pints per day; for expectant and nursing mothers about 2 pints per day; and for other adult members of the community, ½ pint of milk daily." Basing their figures on these recommendations Bransby and Magee in 1947 (5) allowed the following quantities daily: up to 14 years 1.5 pint; 15 to 20 years 1 pint; nursing and expectant mothers 2 pints; other adults 0.5 pint.

The figures for Dublin given in table 3C, when compared with these allowances, show that the percentages which the actual intakes represent of the requirements are those stated in Table 1.

TABLE 1. Percentages which actual consumptions of milk represent of Milk requirements in families of different sizes and social classes in Dublin.

	Number of persons in family			
Type of family	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons
Slum ..	116	73	53	53
Artisan ..	189	110	70	43
Middle Class ..	179	142	101	76
All types ..	151	98	70	49

The outstanding feature of the table is that the milk consumption of the large families in the whole Dublin sample falls seriously short of requirements ; in fact, the greater the need for milk, the less that need is met.

Flour Extraction.

The rate of flour extraction at the time of the survey was 90 per cent., and this largely accounts for the very satisfactory levels of intake of Vitamin B1, niacin and iron. Had the bread and flour been white as in pre-war days, the intakes of these nutrients would have been greatly reduced, and in some cases, would have been below the level of requirements.

The high level of extraction of flour current in 1942/43, when wheat was milled to 100 per cent., together with the facts that it was not fortified with calcium, and that the consumption of bread was very high in large families, must have been an important contributory factor, if not the main factor, in the high incidence of rickets in Dublin at that time, as reported by Jessop and his colleagues (6).

Need for Food Education.

The survey brings out the need for food education to encourage the spending of money to the best nutritional advantage. It emerges, for example, from tables 2B and 3B, that families of different social grades but of approximately the same proportion of children to adults, and the same average food-expenditure, bought significantly different quantities of important foods. Thus, with expenditure on food of 10s. to 15s. per diet-head per week, the average consumption of milk rose from 4.1 pints in the slum families to 5.0 pints in the middle-class families ; similarly that of fruit rose from 4.4 ozs. to 14.0 ozs., and that of vegetables from 21.6 ozs. to 27.8 ozs. The consumption of cheese is strikingly low in nearly all groups, and it is felt that public enlightenment as to its great nutritive value should encourage a higher consumption.

Housing.

The visits of the investigators to the homes to collect the information on food provided the opportunity of recording also data on the number of rooms occupied by the families. Rooms such as lavatory, bathroom, separate scullery or coal room were not included. Table 12 gives the results obtained.

The high degree of overcrowding amongst the slum families is well shown, and table 12C in particular indicates that generally in all slum families of 3 or more persons, the extent of the congestion was over 2 persons per room, and that in families of 8, 9, 10 or 11 persons, the figure reached 4.2 persons per room. The average in the slums as a whole was 2.8 persons per room.

The position was naturally much more satisfactory in the artisan and middle-class families.

SUMMARY.

(1). A food survey was made in Dublin in the period April–August, 1946, of 188 families living in slum houses, 210 families in artisan houses, and 102 families in middle-class houses. The numbers of persons involved were respectively 754, 1,191 and 478. The total number of families surveyed was 500, and of persons 2,423.

(2). In all three social classes, the average consumption of milk, eggs, meat, fish, fruit and vegetables increased markedly with increasing income and food expenditure, but decreased as the size of the family increased. The consumption of fats and sugar did not show any marked change, on account of rationing. That of cheese was low in all groups, and that of potatoes increased with food expenditure and decreased with size of family. For bread and flour, consumption did not vary uniformly with income and food-expenditure, but increased with the size of family.

(3). Broadly, the intake of nutrients with the exception of calcium was satisfactory at all levels of income, food expenditure and family size. The deficiency of calcium was considerable in some groups, being no less than 49 per cent., for example, below requirements in those slum families whose weekly income per head amounted to less than 10s. ,and 43 per cent. in similar families in the artisan group. This was mainly due to the low consumption of milk and cheese. In the poorer slum families the intakes of vitamin A, riboflavin and vitamin C were somewhat insufficient.

(4). Among the poorer and larger families, a high proportion of the meals consisted simply of "bread and spread," the proportion decreasing among the more well-to-do and smaller families. Thus, for children under 14 years, 44 per cent of all the meals eaten were "bread and spread" in slum families, 36 per cent. and 18 per cent. respectively being the comparable figures for artisan and middle-class families.

(5). The main defects of the diets were an insufficient intake of milk, and a lack of variety among the poorer and larger families.

(6). In the slum sample, the average number of rooms per family was 1.4, and of persons per room 2.8. Corresponding figures for the artisan families were 4.4 and 1.3, and for the middle-class families 5.6 and 0.8. Among slum families of 5 or more persons, overcrowding was severe, at 3.8 persons per room ; the figures in the corresponding families in artisan dwellings was 1.5, and in middle-class families 1.1.

Acknowledgments.

Acknowledgment is made to the Minister of Health, London, as well as to the Chief Medical Officer, and to certain officials of that Ministry who afforded advice in the planning of the survey. Particular mention should be made of Dr. E. R. Bransby, Ministry of Health, whose wide experience in surveys of this kind was availed of by way of advice and consultation. Dr. H. E. Magee of the same Ministry kindly arranged for the specialized training of the medical officer appointed to carry out the clinical work of the survey.

The Nutrition Committee of the Medical Research Council first advised on the work requiring to be done, and at various times subsequently, met to hear reports of how this work was progressing, and to suggest amplifications and modifications shown to be advisable in the light of actual field experience.

Thanks are due also to the housewives who so kindly co-operated in supplying the information on which the results of the survey depended.

REFERENCES :

(1). A study of the Diets of 205 Families. County Council of West Riding of Yorkshire, 1939, Wakefield.

(2). Magee, H. E., Public Health, 1943, August, p. 126.

(3). Technical Commission of the Health Committee (1936). Report on the Physiological Bases of Nutrition. League of Nations : A. 12 (*a*). 1936. II .B.

(4). Advisory Committee on Nutrition, Ministry of Health (1937). First Report. London : H.M. Stationery Office.

(5). Bransby, E. R., Magee, H. E. et al. (1947). Brit. J. Nutrit. I,275.

(6). Jessop, W. J. E. et al. J. Med. Assoc. Eire. June, 1943. Nov. 1944, Dec. 1945, Oct. 1946.

TABLE 2A.—AVERAGE COMPOSITION OF 500 SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO INCOME.

Type of Family	Income per Head Weekly						
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All incomes
SLUM							
Total number of families ..	32	45	26	42	39	(*a*)	188
Total number of persons ..	140	183	115	165	129		754
Total number of diet-heads ..	135.8	178.7	113.2	162.6	130.9		743.7
Children 0-14 per family ..	2.5	1.9	1.8	1.3	0.5		1.5
Children 15-16 per family ..	0.1	0.2	0.1	0.0	0.1		0.1
Other persons per family ..	1.8	2.0	2.5	2.6	2.7		2.4
Total persons per family ..	4.4	4.1	4.4	3.9	3.3		4.0
Percentage distribution of families	17.0	23.9	13.8	22.3	20.7		100.0
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All incomes
ARTISAN							
Total number of families ..	16	25	32	62	70	(*a*)	210
Total number of persons ..	130	194	214	331	289		1,191
Total number of diet-heads ..	127.2	191.5	207.4	328.6	287.6		1,175.3
Children 0-14 per family ..	4.8	4.8	3.6	2.3	0.8		2.5
Children 15-16 per family ..	0.4	0.3	0.2	0.1	0.1		0.2
Other persons per family ..	2.9	2.7	2.9	2.9	3.2		3.0
Total persons per family ..	8.1	7.8	6.7	5.3	4.1		5.7
Percentage distribution of families	7.6	11.9	15.2	29.5	33.3		100.0

MIDDLE-CLASS	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All incomes
Total number of families ..	(*a*)	(*a*)	(*a*)	13	82	(*a*)	102
Total number of persons ..				78	361		478
Total number of diet-heads ..				77.1	353.6		469.3
Children 0-14 per family ..				2.8	0.9		1.3
Children 15-16 per family ..				—	0.1		0.1
Other persons per family ..				3.2	3.4		3.3
Total persons per family ..				6.0	4.4		4.7
Percentage distribution of families				12.7	80.4		100.0

ALL TYPES OF FAMILY	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All incomes
Total number of families ..	49	71	59	117	191	13	500
Total number of persons ..	274	385	334	574	779	77	2,423
Total number of diet-heads ..	267.1	378.1	325.5	568.3	772.2	77.1	2,388.3
Children 0-14 per family ..	3.2	3.0	2.8	2.0	0.8	1.4	1.9
Children 15-16 per family ..	0.2	0.2	0.2	0.0	0.1	0.5	0.1
Other persons per family ..	2.2	2.2	2.7	2.8	3.2	4.0	2.8
Total persons per family ..	5.6	5.4	5.7	4.9	4.1	5.9	4.8
Percentage distribution of families	9.8	14.2	11.8	23.4	38.2	2.6	100.0

(*a*) Insufficient families to give trustworthy data.

TABLE 2B.—AVERAGE COMPOSITION OF 500 SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Type of Family	Food Expenditure per Diet-head Weekly				
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
SLUM					
Total number of families	71	70	33	14	188
Total number of persons	315	294	111	34	754
Total number of diet-heads	311.5	288.6	110.6	33.0	743.7
Children 0—14 per family	2.2	1.4	1.0	0.4	1.5
Children 15—16 per family ..	0.1	0.1	0.1	—	0.1
Other persons per family	2.1	2.7	2.3	2.0	2.4
Total persons per family	4.4	4.2	3.4	2.4	4.0
Percentage distribution of families ..	37.8	37.2	17.6	7.4	100.0
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
ARTISAN					
Total number of families	50	96	42	22	210
Total number of persons	370	580	166	75	1,191
Total number of diet-heads	364.3	573.1	164.4	73.5	1,175.3
Children 0—14 per family	4.2	2.7	1.1	0.5	2.5
Children 15—16 per family	0.2	0.2	0.0	0.1	0.2
Other persons per family	3.0	3.1	2.9	2.9	3.0
Total persons per family	7.4	6.0	4.0	3.5	5.7
Percentage distribution of families ..	23.8	45.7	20.0	10.5	100.0

MIDDLE-CLASS	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Total number of families		25	37	37	102
Total number of persons		136	186	136	478
Total number of diet-heads		132.8	182.4	133.9	469.2
Children 0—14 per family		2.0	1.5	0.5	1.3
Children 15–16 per family	(*a*)	0.1	0.1	0.1	0.1
Other persons per family		3.4	3.4	3.1	3.3
Total persons per family		5.5	5.0	3.7	4.7
Percentage distribution of families ..		24.5	36.3	36.3	100.0

ALL TYPES OF FAMILY	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Total number of families	124	191	112	73.	500
Total number of persons	705	1,010	463	245	2,423
Total number of diet-heads	696.0	994.5	457.4	240.4	2,388.3
Children 0—14 per family	3.0	2.1	1.1	0.5	1.9
Children 15—16 per family	0.2	0.2	0.1	0.1	0.1
Other persons per family	2.5	3.0	2.9	2.8	2.8
Total persons per family	5.7	5.3	4.1	3.4	4.8
Percentage distribution of families ..	24.8	38.2	22.4	14.6	100.0

(*a*) Insufficient families to give trustworthy data.

TABLE 2C.—AVERAGE COMPOSITION OF 500 SLUM, ARTISAN AND MIDDLE CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Type of Family	Number of Persons in Family					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
SLUM						
Total number of families ..	49	72	56	11	(a)	188
Total number of persons ..	86	252	319	97		754
Total number of diet-heads ..	88.1	245.8	313.8	96.0		743.7
Children 0—14 per family ..	0.2	1.2	2.7	4.3		1.5
Children 15—16 per family ..	—	0.1	0.1	0.3		0.1
Other persons per family ..	1.6	2.2	2.9	4.2		2.4
Total persons per family ..	1.8	3.5	5.7	8.8		4.0
Percentage distribution of families	26.1	38.3	29.8	5.8		100.0
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
ARTISAN						
Total number of families ..	17	58	88	39	(a)	210
Total number of persons ..	30	205	512	341		1,191
Total number of dict-heads ..	30.6	202.8	504.6	334.5		1,175.3
Children 0—14 per family ..	—	1.1	2.5	4.6		2.5
Children 15—16 per family ..	—	0.0	0.2	0.4		0.2
Other persons per family ..	1.8	2.4	3.1	3.7		3.0
Total persons per family ..	1.8	3.5	5.8	8.7		5.7
Percentage distribution of families	8.1	27.6	41.9	18.6		100.0

MIDDLE-CLASS :	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Total number of families ..	15	37	40	9		102
Total number of persons ..	29	131	228	78		478
Total number of diet-heads ..	32.4	129.8	218.6	76.5		469.3
Children 0—14 per family ..	0.1	0.6	1.9	3.1	(*a*)	1.3
Children 15—16 per family ..	—	0.1	0.1	0.2		0.1
Other persons per family ..	1.8	2.9	3.7	5.4		3.3
Total persons per family ..	1.9	3.6	5.7	8.7		4.7
Percentage distribution of families	14.7	36.3	39.2	8.8		100.0

ALL TYPES OF FAMILY	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Total number of families ..	81	167	184	59		500
Total number of persons ..	145	588	1,059	516		2,423
Total number of diet-heads ..	151.1	578.4	1,037.0	507.0		2,388.3
Children 0—14 per family ..	0.1	1.0	2.4	4.3	(*a*)	1.9
Children 15—16 per family ..	—	0.1	0.2	0.3		0.1
Other persons per family ..	1.7	2.4	3.2	4.1		2.8
Total persons per family ..	1.8	3.5	5.8	8.7		4.8
Percentage distribution of families	16.2	33.4	36.8	11.8		100.0

(*a*) Insufficient families to give trustworthy data.

TABLE 3A.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 500 SLUM, ARTISAN, AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO INCOME.

Commodity Group	Unit of Quantity	Income per Head Weekly						
		Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
SLUM								
Milk (*a*)	Pint	3.1	4.0	3.9	4.5	5.4	(*f*)	4.2
Cheese	Ozs.	0.5	0.8	1.1	1.7	1.8		1.2
Eggs	Number	1.4	2.0	3.6	3.7	5.6		3.2
Fats (*b*)	Ozs.	8.8	8.9	9.4	11.1	10.3		9.7
Meat (*c*)	,,	17.4	25.0	35.7	42.8	55.4		33.6
Fish	,,	4.4	2.6	3.1	5.3	5.0		3.9
Flour and Bread (*d*)	,,	72.8	76.9	76.5	76.8	78.6		76.5
Other Cereals	,,	3.7	2.9	4.5	7.3	7.0		5.1
Potatoes, including Chips ..	,,	81.7	73.2	89.8	94.6	93.5		84.2
Vegetables	,,	12.6	14.7	19.7	28.4	26.3		19.9
Fruit and Fruit Products ..	,,	1.5	2.8	4.3	6.9	8.5		4.6
Sugar	,,	11.3	13.0	12.5	13.4	12.5		12.6
Preserves	,,	1.2	1.5	1.7	2.9	4.8		2.5
Miscellaneous (*e*)	,,	0.4	0.5	0.2	0.4	0.9		0.6
		Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
ARTISAN								
Milk (*a*)	Pint	2.7	3.5	4.4	5.2	5.7	(*f*)	4.6
Cheese	Ozs.	1.2	0.7	1.1	1.6	1.7		1.3
Eggs	Number	1.8	2.1	2.9	4.5	5.8		3.8
Fats (*b*)	Ozs.	10.1	8.3	8.9	9.8	10.1		9.5
Meat (*c*)	,,	22.1	18.9	25.5	29.9	44.2		30.1
Fish	,,	2.3	1.5	4.3	3.9	5.5		3.8
Flour and Bread (*d*)	,,	92.1	82.3	74.4	78.9	72.6		78.7
Other Cereals	,,	1.9	5.4	8.1	10.0	9.8		7.8
Potatoes, including Chips ..	,,	83.9	75.9	83.8	81.2	86.3		82.6
Vegetables	,,	24.1	19.6	24.0	25.3	38.5		27.1
Fruit and Fruit Products ..	,,	2.0	3.6	6.4	9.5	11.4		7.6
Sugar	,,	14.7	12.3	12.1	13.4	13.2		13.1
Preserves	,,	3.1	3.0	4.5	4.5	4.1		4.0
Miscellaneous (*e*)	,,	0.5	0.4	0.8	0.6	0.5		0.6

		Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
MIDDLE-CLASS								
Milk (*a*)	Pint	(*f*)	(*f*)	(*f*)	6.4	6.3	(*f*)	6.3
Cheese	Ozs.				1.1	1.2		1.2
Eggs	Number				4.8	5.9		5.6
Fats (*b*)	Ozs.				8.9	10.3		9.9
Meat (*c*)	,,				30.4	44.3		41.0
Fish	,,				3.1	4.3		4.1
Flour and Bread (*d*)	,,				72.5	65.8		67.1
Other Cereals	,,				13.7	16.0		15.1
Potatoes, including Chips ..	,,				72.9	81.6		80.2
Vegetables	,,				34.7	41.9		40.2
Fruit and Fruit Products ..	,,				16.4	22.9		21.1
Sugar	,,				12.6	12.5		12.7
Preserves	,,				4.5	6.4		5.8
Miscellaneous (*e*)	,,				1.1	0.6		0.7

		Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
ALL TYPES OF FAMILY								
Milk (*a*)	Pint	3.0	3.7	4.3	5.2	5.9	4.4	4.8
Cheese	Ozs.	0.8	0.8	1.2	1.6	1.5	0.8	1.2
Eggs	Number	1.6	2.1	3.2	4.3	5.8	3.4	4.0
Fats (*b*)	Ozs.	9.5	8.6	9.1	10.1	10.2	8.1	9.6
Meat (*c*)	,,	19.9	21.8	26.4	33.7	46.1	35.6	33.3
Fish	,,	3.0	2.1	3.8	4.2	4.9	4.0	3.9
Flour and Bread (*d*)	,,	81.7	79.2	75.1	77.4	70.5	82.8	75.8
Other Cereals	,,	3.2	4.2	6.8	9.8	12.1	5.6	8.4
Potatoes, including Chips ..	,,	76.8	74.2	85.3	83.9	85.4	97.1	82.7
Vegetables	,,	16.9	17.6	22.4	27.5	38.0	25.3	27.4
Fruit and Fruit Products ..	,,	1.7	3.3	5.8	9.9	16.2	7.8	9.3
Sugar	,,	12.9	12.6	12.2	13.3	12.8	13.5	12.8
Preserves	,,	2.2	2.3	3.6	4.1	5.3	4.2	3.9
Miscellaneous (*e*)	,,	0.7	0.5	0.6	0.6	0.6	0.7	0.6

(*a*) All forms stated as liquid milk.
(*b*) Including Butter, Margarine, Suet, Lard, etc.
(*c*) Including Beef, Mutton, Pork, Bacon, Poultry and Offals.
(*d*) Expressed as Flour.
(*e*) Items such as Cocoa, Sauces, Patent Drinks and Foods, etc.
(*f*) Insufficient families to give trustworthy data.

TABLE 3B.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 500 SLUM, ARTISAN, AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY GROUP	Unit of Quantity	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
SLUM						
Milk (*a*)	Pint	3.4	4.1	5.5	7.7	4.2
Cheese	Ozs.	0.7	1.5	1.4	2.5	1.2
Eggs	Number	1.7	3.5	5.1	7.4	3.2
Fats (*b*)	Ozs.	8.4	10.4	10.6	11.2	9.7
Meat (*c*)	,,	17.9	37.1	52.4	70.9	33.6
Fish	,,	2.9	4.2	5.5	6.7	3.9
Flour and Bread (*d*)	,,	69.9	80.1	82.0	88.6	76.5
Other Cereals	,,	3.1	5.9	6.6	12.2	5.1
Potatoes, including Chips	,,	69.0	89.0	101.3	127.6	84.2
Vegetables	,,	12.2	21.6	31.9	37.1	19.9
Fruit and Fruit Products	,,	1.8	4.4	8.2	19.5	4.6
Sugar	,,	12.0	12.7	13.4	13.5	12.6
Preserves	,,	1.6	3.0	3.2	3.4	2.5
Miscellaneous (*e*)	,,	0.5	0.6	0.5	0.8	0.6
		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
ARTISAN						
Milk (*a*)	Pint	3.2	4.7	6.0	7.8	4.6
Cheese	Ozs.	0.9	1.2	2.4	1.6	1.3
Eggs	Number	1.9	4.0	5.4	8.9	3.8
Fats (*b*)	Ozs.	8.4	9.5	10.3	12.6	9.5
Meat (*c*)	,,	19.6	29.2	44.6	57.2	30.1
Fish	,,	1.9	4.3	5.9	4.6	3.8
Flour and Bread (*d*)	,,	76.1	80.1	78.7	80.9	78.7
Other Cereals	,,	4.2	7.0	13.4	19.4	7.8
Potatoes, including Chips	,,	72.2	83.7	90.9	108.2	82.6
Vegetables	,,	19.5	25.1	42.8	45.8	27.1
Fruit and Fruit Products	,,	3.1	7.4	14.6	16.0	7.6
Sugar	,,	12.0	13.3	13.1	16.3	13.1
Preserves	,,	2.5	4.8	4.1	5.5	4.0
Miscellaneous (*e*)	,,	0.3	0.7	0.8	0.4	0.6

MIDDLE-CLASS		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Milk (*a*)	Pint	(*f*)	5.0	6.4	7.5	6.3
Cheese	Ozs.		1.2	1.1	1.2	1.2
Eggs	Number		4.4	5.3	7.6	5.6
Fats (*b*)	Ozs.		9.9	8.8	11.7	9.9
Meat (*c*)	,,		23.4	39.2	59.6	41.0
Fish	,,		3.4	4.7	4.2	4.1
Flour and Bread (*d*)	,,		68.5	67.1	68.3	67.1
Other Cereals	,,		9.0	14.7	23.5	15.1
Potatoes, including Chips	,,		65.1	80.0	98.3	80.2
Vegetables	,,		27.8	44.5	48.6	40.2
Fruit and Fruit Products	,,		14.0	22.6	25.6	21.1
Sugar	,,		12.4	12.4	13.2	12.7
Preserves	,,		3.9	5.3	8.7	5.8
Miscellaneous (*e*)	,,		0.8	0.6	0.9	0.7

ALL TYPES OF FAMILY		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Milk (*a*)	Pint	3.2	4.6	6.1	7.7	4.8
Cheese	Ozs.	0.9	1.3	1.6	1.5	1.2
Eggs	Number	1.8	3.9	5.3	7.9	4.0
Fats (*b*)	Ozs.	8.4	9.9	9.8	11.9	9.6
Meat (*c*)	,,	19.6	31.4	44.3	60.4	33.3
Fish	,,	2.3	4.1	5.3	4.7	3.9
Flour and Bread (*d*)	,,	72.8	78.5	74.9	74.9	75.8
Other Cereals	,,	3.6	6.9	12.3	20.7	8.4
Potatoes, including Chips	,,	70.6	82.7	89.1	105.3	82.7
Vegetables	,,	16.5	24.4	40.9	46.2	27.4
Fruit and Fruit Products	,,	2.7	7.4	16.9	21.8	9.3
Sugar	,,	12.1	13.0	12.9	14.2	12.8
Preserves	,,	2.1	4.2	4.4	7.0	3.9
Miscellaneous (*e*)	,,	0.4	0.7	0.6	0.7	0.6

(*a*) All forms stated as liquid Milk.
(*b*) Including Butter, Margarine, Suet, Lard, etc.
(*c*) Including Beef, Mutton, Pork, Bacon, Poultry and Offals.
(*d*) Expressed as Flour.
(*e*) Items such as Cocoa, Sauces, Patent Drinks and Foods, etc.
(*f*) Insufficent families to give trustworthy data.

TABLE 3C.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 500 SLUM, ARTISAN, AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO SIZE OF FAMILY.

Commodity Group	Unit of Quantity	Number of Persons in Family				
		1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	All sizes of family
SLUM						
Milk (*a*)	Pint	5.0	4.6	3.7	3.9	4.2
Cheese	Ozs.	1.5	1.0	1.4	0.8	1.2
Eggs	Number	4.4	3.2	2.9	2.8	3.2
Fats (*b*)	Ozs.	11.2	9.7	9.2	9.8	9.7
Meat (*c*)	,,	44.6	35.4	29.7	31.7	33.6
Fish	,,	6.6	3.5	3.9	2.5	3.9
Flour and Bread (*d*)	,,	75.5	74.2	76.2	84.4	76.5
Other Cereals	,,	5.5	6.4	4.3	4.2	5.1
Potatoes, including Chips	,,	97.0	89.1	74.8	90.3	84.2
Vegetables	,,	27.4	23.6	15.8	16.5	19.9
Fruit and Fruit Products	,,	6.2	5.4	2.7	7.1	4.6
Sugar	,,	13.1	13.1	12.3	11.8	12.6
Preserves	,,	2.9	2.9	2.0	2.3	2.5
Miscellaneous (*e*)	,,	0.6	0.9	0.4	0.3	0.6
		1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	All sizes of of family
ARTISAN						
Milk (*a*)	Pint	6.6	6.3	4.8	3.3	4.6
Cheese	Ozs.	2.2	2.0	1.2	0.8	1.3
Eggs	Number	6.5	5.8	3.7	2.6	3.8
Fats (*b*)	Ozs.	11.0	10.7	9.5	8.4	9.5
Meat (*c*)	,,	57.2	38.8	28.8	25.3	30.1
Fish	,,	7.1	4.0	4.2	2.9	3.8
Flour and Bread (*d*)	,,	71.4	70.8	74.7	83.8	78.7
Other Cereals	,,	9.4	13.0	8.0	5.2	7.8
Potatoes, including Chips	,,	91.2	90.5	79.7	79.5	82.6
Vegetables	,,	41.5	33.6	27.6	22.5	27.1
Fruit and Fruit Products	,,	14.9	11.6	8.9	3.8	7.6
Sugar	,,	16.0	13.6	12.6	12.6	13.1
Preserves	,,	2.8	4.2	4.4	3.1	4.0
Miscellaneous (*e*)	,,	0.5	0.8	0.6	0.4	0.6

		1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	All sizes of of family
MIDDLE-CLASS						
Milk (*a*)	Pint	7.0	7.1	6.1	4.7	6.3
Cheese	Ozs.	1.2	0.6	1.6	0.9	1.2
Eggs	Number	8.0	6.2	5.1	4.2	5.6
Fats (*b*)	Ozs.	13.8	9.5	9.4	10.0	9.9
Meat (*c*)	,,	58.7	45.3	40.2	28.1	41.0
Fish	,,	4.1	4.4	4.0	3.5	4.1
Flour and Bread (*d*)	,,	63.3	58.3	67.8	74.7	67.1
Other Cereals	,,	20.4	14.6	15.8	9.4	15.1
Potatoes, including Chips	,,	89.3	84.3	78.1	72.2	80.2
Vegetables	,,	41.8	43.0	40.8	32.2	40.2
Fruit and Fruit Products	,,	19.0	23.6	20.9	17.8	21.1
Sugar	,,	14.6	12.4	12.8	12.2	12.7
Preserves	,,	6.1	6.8	5.6	4.3	5.8
Miscellaneous (*e*)	,,	1.9	0.9	0.5	0.7	0.7
		1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	All sizes of family
ALL TYPES OF FAMILY						
Milk (*a*)	Pint	5.8	5.7	4.7	3.6	4.8
Cheese	Ozs.	1.6	1.3	1.4	0.9	1.2
Eggs	Number	5.6	4.8	3.8	2.9	4.0
Fats (*b*)	Ozs.	11.8	10.0	9.4	8.9	9.6
Meat (*c*)	,,	50.2	38.8	31.4	26.9	33.3
Fish	,,	6.2	3.9	4.1	2.9	3.9
Flour and Bread (*d*)	,,	72.1	69.5	73.7	82.5	75.8
Other Cereals	,,	9.5	10.5	8.5	5.6	8.4
Potatoes, including Chips	,,	93.7	88.5	77.9	70.4	82.7
Vegetables	,,	33.3	31.2	26.7	22.8	27.4
Fruit and Fruit Products	,,	10.7	11.7	9.6	6.5	9.3
Sugar	,,	14.0	13.1	12.6	12.4	12.8
Preserves	,,	3.6	4.2	3.9	3.1	3.9
Miscellaneous (*e*)	,,	0.7	0.9	0.4	0.4	0.6

(*a*) All forms stated as liquid milk.
(*b*) Including Butter, Margarine, Suet, Lard, etc.
(*c*) Including Beef, Mutton, Pork, Bacon, Poultry and Offals.
(*d*) Expressed as Flour.
(*e*) Items such as Cocoa, Sauces, Patent Drinks and Foods, etc.

TABLE 4A.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 188 SLUM FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY	Unit of Quantity	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All slum families
Butter	Ozs.	6.9	7.3	7.4	8.3	7.2
Margarine	,,	0.5	1.3	1.0	0.8	0.9
Other Fats	,,	1.0	2.0	2.0	2.1	1.6
Sugar	,,	12.0	12.7	13.6	13.5	12.6
Preserves	,,	1.6	3.0	3.2	3.4	2.5
Milk liquid, Milk whole condensed, and Milk whole dried	Pint	3.0	3.5	4.8	7.2	3.7
Skimmed milk and buttermilk and skimmed condensed milk ..	,,	0.1	0.2	0.2	0.1	0.2
Cheese	Ozs.	0.7	1.5	1.4	2.5	1.2
Eggs	Number	1.7	3.5	5.1	7.4	3.2
Beef and veal	Ozs.	7.4	12.3	17.0	19.1	11.3
Mutton and Lamb	,,	1.5	4.2	5.6	11.8	3.6
Pork	,,	0.3	1.3	1.3	2.9	1.0
Bones	,,	0.2	—	—	1.9	0.2
Corn beef, Mutton and Pork ..	,,	4.7	6.0	5.2	5.3	5.3
Bacon	,,	2.1	5.5	9.3	15.1	5.1
Liver, sheep	,,	0.2	0.3	0.9	0.7	0.4
,, other	,,	0.3	0.6	1.1	0.5	0.5
Other offals	,,	0.6	1.1	3.0	2.8	1.3
Cooked and canned meat	,,	0.6	1.3	3.1	2.1	1.3
Sausages (uncooked)	,,	1.3	3.0	3.2	7.1	2.5
Other meat products	,,	0.7	1.6	1.4	1.8	1.2
White fish	,,	1.0	2.7	3.7	5.8	2.3

Fish processed	,,	0.2	0.2	0.2	0.8	0.2
Fat fish, fresh	,,	1.8	1.2	1.4	0.1	1.4
Fish canned	,,	0.0	0.0	0.1	—	0.0
Potatoes, unpeeled, peeled and Chips	,,	69.0	89.0	101.3	127.5	84.2
Carrots	,,	0.7	1.0	1.2	1.7	0.9
Other roots	,,	1.0	1.9	3.6	0.3	1.7
Green vegetables	,,	8.0	13.5	19.0	21.4	12.5
Miscellaneous vegetables ..	,,	2.0	3.7	4.5	10.7	3.4
Legumes, fresh	,,	0.1	0.1	0.4	0.4	0.2
Pulses, dried	,,	0.5	1.1	2.1	1.5	1.0
Pulses, canned	,,	0.0	0.2	0.4	1.2	0.2
Tomatoes	,,	0.4	0.9	1.8	4.1	0.9
Citrus fruits	,,	0.5	0.2	0.3	3.2	0.5
Other fruit	,,	0.7	2.8	5.3	10.0	2.6
Bottled and canned fruit	,,	0.0	0.1	—	1.0	0.1
Dried vine fruit	,,	0.2	0.3	0.7	1.0	0.4
Other dried fruit	,,	0.1	0.2	0.1	0.2	0.1
Flour	,,	1.2	4.9	5.8	12.5	3.8
Bread	,,	88.8	97.1	98.2	98.6	93.8
Biscuits, including wafers, excluding oatmeal biscuits	,,	0.3	0.8	1.1	1.2	0.7
Cakes	,,	0.2	2.0	1.7	3.6	1.5
Puddings	,,	—	0.1	—	0.5	0.0
Oatmeal and oat products ..	,,	1.9	1.9	1.7	3.7	1.9
Breakfast cereals	,,	0.1	0.2	0.1	0.3	0.1
Cereals (rice and barley)	,,	0.0	0.1	0.2	0.2	0.1
Cereals (flour base)	,,	0.4	0.4	0.1	1.1	0.4
Other cereals	,,	0.2	0.5	0.7	1.5	0.4
Cocoa and cocoa-based drinks ..	,,	0.3	0.3	0.3	0.4	0.3
Patent drinks and patent foods ..	,,	0.2	0.0	—	—	0.1
Soups and extracts	,,	0.1	0.2	0.1	0.4	0.2

TABLE 4B.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 210 ARTISAN FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY	Unit of Quantity	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All Artisan families
Butter	Ozs.	6.7	7.4	8.1	9.3	7.4
Margarine	,,	0.2	0.5	0.6	0.5	0.4
Other Fats	,,	1.5	1.6	1.6	2.8	1.7
Sugar	,,	12.0	13.3	13.1	16.3	13.1
Preserves	,,	2.5	4.8	4.0	5.5	4.0
Syrup and Treacle	,,	—	—	0.1	0.0	0.0
Milk liquid, Milk whole condensed, and Milk whole dried	Pint	2.9	4.5	5.7	7.1	4.3
Skimmed milk and buttermilk and skimmed condensed milk ..	,,	0.1	0.1	0.1	0.2	0.1
Cheese	Ozs.	0.9	1.2	2.4	1.6	1.3
Eggs	Number	1.9	4.0	5.4	8.9	3.8
Beef and Veal	Ozs.	7.1	11.7	13.8	16.9	10.9
Mutton and Lamb	,,	1.1	3.5	8.8	16.1	4.3
Pork	,,	0.4	0.9	1.1	3.3	0.9
Corn Beef, Mutton and Pork	,,	4.1	3.6	6.2	2.3	4.0
Bacon	,,	1.8	3.8	7.5	8.5	4.0
Liver, sheep	,,	0.1	0.4	0.4	0.8	0.3
,, other	,,	0.6	0.4	0.3	0.4	0.4
Other offals	,,	0.8	1.0	0.6	1.3	0.9
Cooked and canned meat	,,	0.9	0.8	2.1	1.5	1.1
Sausages (uncooked)	,,	1.9	2.2	2.6	4.3	2.3
Other meat products	,,	1.0	0.9	1.0	2.0	1.0
White fish	,,	0.7	2.0	3.7	3.3	1.9
Fish processed	,,	0.1	0.3	0.4	—	0.2

Fat fish, fresh	,,	1.0	1.8	1.8	1.4	1.6
Fish canned	,,	0.1	0.2	0.0	—	0.1
Potatoes, unpeeled, peeled and Chips ..	,,	72.2	83.6	90.9	108.2	82.6
Carrots	,,	0.5	0.7	1.1	1.8	0.8
Other roots	,,	0.6	0.7	1.1	1.4	0.7
Green vegetables	,,	13.1	16.9	32.6	32.0	18.8
Miscellaneous vegetables	,,	4.8	5.1	5.9	6.3	5.2
Legumes, fresh	,,	0.2	0.1	0.2	1.1	0.2
Pulses, dried	,,	0.6	1.2	1.4	2.9	1.2
,, canned	,,	0.1	0.3	0.6	0.4	0.3
Tomatoes	,,	0.8	1.2	2.4	4.0	1.4
Citrus fruits	,,	0.3	1.1	1.8	1.7	1.0
Other fruit	,,	1.7	3.9	8.0	7.7	4.0
Bottled and canned fruits ..	,,	—	0.1	0.2	1.1	0.1
Dried vine fruit	,,	0.3	1.1	2.0	1.1	1.0
Other dried fruit	,,	0.1	0.1	0.2	0.5	0.1
Flour	,,	4.6	8.4	9.4	12.1	7.6
Bread	,,	92.1	92.5	89.9	89.7	91.9
Biscuits, including wafers, excluding oatmeal biscuits	,,	0.4	0.8	1.6	2.7	0.9
Cakes	,,	0.2	0.4	1.2	2.6	1.3
Puddings	,,	0.4	—	0.1	—	0.1
Oatmeal and oat products ..	,,	2.7	3.0	4.5	6.5	3.3
Breakfast cereals	,,	0.1	0.5	0.6	0.2	0.4
Cereals (rice and barley)	,,	0.0	0.2	0.1	0.5	0.1
Cereals (flour base)	,,	0.1	0.6	1.5	1.8	0.6
Other cereals	,,	0.4	1.0	2.2	1.8	1.0
Cocoa and cocoa-based drinks ..	,,	0.2	0.4	0.3	0.4	0.3
Patent drinks and patent foods ..	,,	0.1	0.1	0.3	—	0.1
Soups and extracts	,,	0.1	0.1	0.1	0.0	0.1

TABLE 4C.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 102 MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY	Unit of Quantity	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All middle-class families
Butter	Ozs.		7.9	6.8	9.1	7.8
Margarine	,,		0.3	0.3	0.9	0.5
Other fats	,,		1.6	1.8	1.7	1.7
Sugar	,,		12.4	12.4	13.2	12.7
Preserves	,,		3.9	5.3	8.7	5.8
Milk liquid, Milk whole condensed, and Milk whole dried	Pints		4.7	6.0	7.1	5.9
Skimmed milk and buttermilk and skimmed condensed milk.	,,		0.1	0.2	0.0	0.1
Cheese	Ozs.		1.2	1.1	1.2	1.2
Eggs	Number		4.4	5.3	7.6	5.6
Beef and Veal	Ozs.		9.6	14.2	16.4	13.4
Mutton and Lamb	,,		5.1	9.2	13.7	9.0
Pork	,,		0.7	1.5	2.1	1.4
Bones	,,		—	—	0.8	0.2
Corn Beef, Mutton and Pork ..	,,		3.7	2.5	3.8	3.3
Bacon	,,		3.2	4.8	10.1	5.7
Liver, sheep	,,		0.7	0.2	0.7	0.5
,, other	,,		0.2	0.3	0.1	0.2
Other offals	,,		0.6	0.9	5.2	2.0
Cooked and canned Meats	,,		0.9	1.4	1.1	1.1
Sausages (uncooked)	,,		2.4	2.8	4.3	3.1
Other meat products	,,		1.3	1.3	1.4	1.3
White fish	,,	(*a*)	1.6	3.5	2.8	2.7

White fish, processed Fat fish, ,,	,,		—	0.4	1.0	0.4
Fat fish, fresh	,,		1.7	0.7	0.1	0.8
Fish, canned	,,		0.2	0.2	0.3	0.2
Potatoes, unpeeled, peeled and Chips	,,		65.1	80.0	98.3	80.2
Carrots	,,		0.4	0.4	2.2	0.9
Other roots	,,		3.0	1.1	1.9	1.8
Green vegetables	,,		18.0	33.2	25.6	26.3
Miscellaneous vegetables	,,		4.4	6.2	13.4	7.6
Legumes, fresh	,,		0.8	1.8	3.5	1.9
Pulses, dried	,,		0.7	1.1	1.5	1.1
Pulses, canned	,,		0.4	0.9	0.6	0.6
Tomatoes	,,		1.5	2.4	4.8	2.7
Citrus fruits	,,		3.0	4.8	5.5	4.3
Other fruit	,,		8.3	14.9	13.7	12.1
Bottled and canned Fruit	,,		—	0.1	0.3	0.1
Dried vine fruit	,,		1.0	1.1	1.2	1.1
Other dried fruit	,,		0.2	0.9	0.2	0.5
Nuts and fruit products	,,		0.1	0.0	—	0.0
Flour	,,		15.2	18.7	12.6	15.4
Bread	,,		69.7	63.1	73.8	68.1
Biscuits, including wafers, excluding oatmeal biscuits	,,		1.7	3.1	4.8	3.1
Cakes	,,		2.2	3.6	8.2	4.4
Puddings	,,		—	0.4	0.4	0.3
Oatmeal and oat Products	,,		2.5	4.0	5.9	3.9
Breakfast cereals	,,		0.9	0.7	0.7	0.8
Cereals (rice and barley)	,,		0.1	0.2	0.1	0.1
Cereals (flour base)	,,		0.6	1.0	1.3	0.9
Other cereals	,,		1.0	1.8	2.0	1.6
Cocoa and cocoa-based drinks	,,		0.4	0.3	0.2	0.3
Patent drinks and patent foods	,,		0.3	0.1	—	0.1
Soups and extracts	,,		0.0	0.1	0.3	0.2

(*a*) Insufficient families to give trustworthy data.

TABLE 5A.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 500 SLUM, ARTISAN, AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO INCOME.

Commodity Group	Income per Head Weekly						
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
SLUM	s. d.	s. d.	s. d.	s. d.	s. d.		s. d.
Milk	8	1 2	1 0	1 3	1 5		1 2
Cheese	1	1	1	2	2		2
Eggs	4	6	10	10	1 3		9
Fats (*a*)	1 2	1 3	1 2	1 5	1 3		1 3
Meat (*b*)	1 7	2 4	3 2	4 4	5 10		3 4
Fish	2	2	3	5	5		3
Flour and Bread	1 8	1 9	1 10	1 10	1 10		1 9
Other Cereals	3	—	3	6	7		4
Potatoes, including Chips	8	9	10	11	11	(*d*)	10
Vegetables	3	4	5	6	7		6
Fruit and Fruit Products	—	1	2	4	6		3
Sugar	4	4	5	5	4		5
Preserves	1	1	1	3	4		2
Miscellaneous (*c*)	5	6	4	7	7		6
Total Expenditure	7 8	9 4	10 10	13 9	16 0		11 8
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
ARTISAN	s. d.	s. d.	s. d.	s. d.	s. d.		s. d.
Milk	8	1 0	1 2	1 6	1 7		1 4
Cheese	1	1	1	2	2		2
Eggs	5	6	9	1 1	1 4		11
Fats (*a*)	1 4	1 1	1 1	1 3	1 3		1 2
Meat (*b*)	1 11	1 9	3 7	3 4	5 4		3 4
Fish	1	—	3	3	2		3
Flour and Bread	2 1	1 10	1 8	1 11	1 9		1 10
Other Cereals	1	2	4	6	11		6
Potatoes, including Chips	9	8	9	9	10		10
Vegetables	4	5	6	6	9		7
Fruit and Fruit Products	1	2	3	5	8	(*d*)	4
Sugar	5	4	4	5	5		5
Preserves	3	2	4	4	4		3
Miscellaneous (*c*)	5	5	5	5	7		7
Total Expenditure	8 11	8 7	11 6	12 10	16 1		12 6

	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
MIDDLE-CLASS	s. d.	s. d.	s. d.	s. d.	s. d.		s. d.
Milk				1 9	1 10		1 10
Cheese				2	2		2
Eggs				1 2	1 6		1 4
Fats (*a*)				1 2	1 2		1 3
Meat (*b*)				3 7	5 5		5 0
Fish				3	6		5
Flour and Bread ..				1 10	1 8		1 8
Other Cereals				11	1 4		1 3
Potatoes, including Chips ..				7	10		9
Vegetables				10	1 0		11
Fruit and Fruit Products ..	(*d*)	(*d*)	(*d*)	8	1 5	(*d*)	1 5
Sugar				4	4		4
Preserves				4	6		5
Miscellaneous (*c*)				8	10		9
Total Expenditure ..				14 3	18 6		17 6

	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
ALL TYPES OF FAMILY	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	9	1 0	1 2	1 6	1 9	1 3	1 4
Cheese	1	1	1	1	2	1	2
Eggs	5	6	9	1 0	1 4	8	11
Fats (*a*)	1 3	1 2	1 2	1 3	1 3	1 0	1 3
Meat (*b*)	1 9	2 0	1 10	3 8	5 5	3 7	3 8
Fish	2	1	3	4	5	4	4
Flour and Bread ..	1 11	1 9	1 9	1 10	1 9	1 10	1 10
Other Cereals	2	3	5	8	1 0	6	7
Potatoes, including Chips ..	9	9	10	10	10	11	10
Vegetables	3	4	6	7	10	7	7
Fruit and Fruit Products ..	1	2	3	5	11	4	6
Sugar	5	4	4	5	4	5	4
Preserves	2	2	3	4	5	4	3
Miscellaneous (*c*)	6	6	6	7	8	8	7
Total Expenditure ..	8 8	9 1	10 1	13 6	17 1	12 6	13 2

(*a*) Including Butter, Margarine, Suet, Lard, etc.
(*b*) Including Beef, Mutton, Pork, Bacon, Poultry and Offals.
(*c*) Items such as Tea, Coffee, Cocoa, Sauces, Patent drinks and foods, etc.
(*d*) Insufficient families to give trustworthy data.

TABLE 5B.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 500 SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Commodity Group	Food Expenditure per Diet-Head Weekly				
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
SLUM	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	10	1 2	1 5	2 1	1 2
Cheese	1	2	2	3	2
Eggs	5	10	1 2	1 10	9
Fats (*a*)	1 1	1 4	1 4	1 5	1 3
Meat (*b*)	1 9	3 8	5 7	8 10	3 4
Fish	2	3	5	7	3
Flour and Bread	1 7	1 10	1 11	2 2	1 9
Other Cereals	2	6	6	10	4
Potatoes, including Chips	8	11	1 1	1 5	10
Vegetables	3	6	9	11	6
Fruit and Fruit Products	1	2	6	1 8	3
Sugar	4	5	5	4	5
Preserves	1	3	3	3	2
Miscellaneous (*c*)	5	7	7	10	6
Total Expenditure	7 11	12 7	16 1	23 5	11 8
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
ARTISAN	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	9	1 5	1 9	2 2	1 4
Cheese	1	2	3	2	2
Eggs	5	11	1 4	2 2	11
Fats (*a*)	1 1	1 2	1 4	1 7	1 2
Meat (*b*)	1 5	3 3	5 3	7 0	3 4
Fish	1	3	5	7	3
Flour and Bread	1 9	1 10	1 11	2 1	1 10
Other Cereals	2	5	1 1	1 7	6
Potatoes, including Chips	7	10	10	1 0	10
Vegetables	4	7	11	1 2	7
Fruit and Fruit Products	1	4	8	10	4
Sugar	4	5	5	6	5
Preserves	2	4	4	5	3
Miscellaneous (*c*)	5	7	7	9	7
Total Expenditure	7 8	12 6	17 1	22 0	12 6

	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
MIDDLE-CLASS	s. d.	s. d.	s. d.	s. d.	s. d.
Milk		1 6	1 11	2 3	1 10
Cheese		2	1	2	2
Eggs		1 1	1 4	1 11	1 4
Fats (*a*)		1 3	1 1	1 5	1 3
Meat (*b*)		3 1	4 8	7 5	5 0
Fish		3	6	7	5
Flour and Bread		1 8	1 7	1 10	1 8
Other Cereals		8	1 3	2 2	1 3
Potatoes, including Chips		7	9	10	9
Vegetables	(*d*)	6	10	1 6	11
Fruit and Fruit Products		7	1 5	1 10	1 5
Sugar..		4	4	5	4
Preserves		3	5	8	5
Miscellaneous (*c*)		8	8	1 0	9
Total Expenditure		12 7	16 10	24 0	17 6

	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
ALL TYPES OF FAMILY	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	10	1 4	1 10	2 3	1 4
Cheese	1	2	2	2	2
Eggs	5	11	1 4	2 0	11
Fats (*a*)	1 1	1 3	1 3	1 6	1 3
Meat (*b*)	1 9	3 4	5 2	7 7	3 8
Fish	1	3	5	7	4
Flour and Bread	1 8	1 10	1 10	1 11	1 10
Other Cereals	2	6	9	1 5	7
Potatoes, including Chips	8	10	11	11	10
Vegetables	4	7	10	1 3	7
Fruit and Fruit Products	1	4	11	1 11	6
Sugar..	4	5	5	5	4
Preserves	2	3	4	6	3
Miscellaneous (*c*)	4	7	8	11	7
Total Expenditure	8 0	12 7	16 10	23 4	13 2

(*a*) Including Butter, Margarine, Suet, Lard, etc.
(*b*) Including Beef, Mutton, Pork, Bacon, Poultry and Offals.
(*c*) Items such as Tea, Coffee, Cocoa, Sauces, Patent drinks and foods, etc.
(*d*) Insufficient families to give trustworthy data.

TABLE 5C.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 500 SLUM, ARTISAN, AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO SIZE OF FAMILY.

COMMODITY GROUP	NUMBER OF PERSONS IN FAMILY				
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	All sizes of family
SLUM	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	1 5	1 3	11	1 1	1 2
Cheese	2	1	2	1	2
Eggs	1 0	9	8	8	9
Fats (*a*)	1 5	1 2	1 3	1 3	1 3
Meat (*b*)	4 9	3 5	2 11	3 9	3 4
Fish	5	3	3	3	3
Flour and Bread	1 10	1 9	1 9	2 0	1 9
Other Cereals	4	5	3	4	4
Potatoes, including Chips	11	10	9	11	10
Vegetables	5	5	4	4	6
Fruit and Fruit Products	4	2	1	7	3
Sugar	5	5	5	4	5
Preserves	3	3	2	2	2
Miscellaneous (*c*)	8	7	5	5	6
Total Expenditure	14 4	11 9	10 4	12 2	11 8
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	All sizes of family
ARTISAN	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	1 9	1 9	1 3	11	1 4
Cheese	3	3	2	1	2
Eggs	1 7	1 4	11	7	11
Fats (*a*)	1 4	1 4	1 3	1 1	1 2
Meat (*b*)	6 10	4 10	3 3	2 8	3 4
Fish	7	3	3	2	3
Flour and Bread	1 9	1 8	1 9	1 11	1 10
Other Cereals	9	1 1	6	3	6
Potatoes, including Chips	10	11	10	10	10
Vegetables	1 1	8	6	5	7
Fruit and Fruit Products	9	6	4	3	4
Sugar	6	5	4	4	5
Preserves	3	4	4	8	3
Miscellaneous (*c*)	9	7	5	5	7
Total Expenditure	19 0	15 11	12 1	10 2	12 6

	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	All sizes of family
MIDDLE-CLASS	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	2 1	2 1	1 9	1 6	1 10
Cheese	2	1	2	1	2
Eggs	1 11	1 6	1 3	1 1	1 4
Fats (*a*)	1 7	1 2	1 2	1 3	1 3
Meat (*b*)	7 5	5 6	4 11	3 4	5 0
Fish	6	6	5	3	5
Flour and Bread	1 8	1 8	1 7	1 9	1 8
Other Cereals	2 0	1 2	1 4	10	1 3
Potatoes, including Chips	11	11	9	9	9
Vegetables	1 5	1 3	9	7	11
Fruit and Fruit Products	11	1 6	1 5	9	1 5
Sugar	6	4	4	4	4
Preserves	6	6	5	4	5
Miscellaneous (*c*)	1 3	11	8	6	9
Total Expenditure	22 10	19 1	16 11	13 4	17 6
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	All sizes of family
ALL TYPES OF FAMILY	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	1 8	1 9	1 4	1 1	1 4
Cheese	2	2	2	1	2
Eggs	1 4	1 1	11	8	11
Fats (*a*)	1 5	1 3	1 3	1 2	1 3
Meat (*b*)	5 8	4 4	3 5	2 10	3 8
Fish	6	5	4	3	4
Flour and Bread	1 9	1 8	1 9	1 11	1 10
Other Cereals	10	10	7	4	7
Potatoes, including Chips	10	10	9	10	10
Vegetables	10	9	7	8	7
Fruit and Fruit Products	8	7	6	4	6
Sugar	6	5	4	4	4
Preserves	3	4	4	3	3
Miscellaneous (*c*)	10	8	7	6	7
Total Expenditure	17 3	15 1	12 10	11 3	13 2

(*a*) Including Butter, Margarine, Suet, Lard, etc.
(*b*) Including Beef, Mutton, Pork, Bacon, Poultry and Offals.
(*c*) Items such as Tea, Coffee, Cocoa, Sauces, Patent drinks and foods, etc.

TABLE 6A.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 188 SLUM FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Commodity	Food Expenditure per Diet-Head Weekly				
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All Slum Families
	s. d.	s. d.	s. d.	s. d.	s. d.
Butter	1 0	1 1	1 1	1 2	1 1
Margarine	1	2	1	1	1
Other fats	1	1	2	2	1
Sugar	4	5	5	4	5
Preserves	1	3	3	3	2
Milk liquid, milk whole condensed, and milk whole dried	9	11	1 6	2 0	1 0
Skimmed milk and buttermilk and skimmed condensed milk	1	2	2	2	2
Cheese	1	2	2	3	2
Eggs	5	10	1 2	1 10	9
Beef and Veal	7	1 1	1 7	2 1	1 0
Mutton and lamb	2	5	6	1 6	4
Pork	0	2	2	6	2
Bones	0	—	—	2	0
Corn beef, mutton and pork..	4	6	5	4	5
Bacon	4	10	1 5	2 4	9
Liver, sheep	0	0	1	1	0
Liver, other	0	1	1	1	1
Other offals	0	1	3	3	1
Cooked and canned meat ..	1	1	3	5	1
Sausages (uncooked) ..	2	4	5	11	4
Other meat products ..	1	1	1	2	1
White fish	1	2	4	7	2
Fish, processed	0	0	0	1	0
Fat fish, fresh	1	1	1	0	1
Potatoes, including Chips ..	8	11	1 1	1 5	10
Carrots	0	0	0	0	0
Other roots	0	0	1	0	0
Green vegetables	2	2	4	5	2
Miscellaneous vegetables ..	1	2	2	4	1
Pulses, dried	0	1	2	1	1
Pulses, canned	0	0	0	1	0
Tomatoes	0	1	3	11	1
Citrus fruits	0	0	0	1	0
Other fruit	0	1	2	7	1
Dried vine fruit	0	0	1	1	0
Flour and Bread	1 7	1 10	1 11	2 2	1 9
Biscuits, including wafers, excluding oatmeal biscuits..	0	1	1	2	1
Cakes	0	2	4	3	2
Puddings	—	1	—	0	0
Oatmeal and oat products ..	1	0	1	1	1
Cereals (flour base) ..	0	0	0	1	0
Other cereals	0	1	1	2	1
Cocoa and cocoa-based drinks	0	0	0	1	0
Soups and extracts ..	0	1	0	1	0
Items having no food value (*a*)	4	6	7	7	5

(*a*) These include tea, coffee, condiments, etc.

TABLE 6B.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 210 ARTISAN FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All artisan families
	s. d.	s. d.	s. d.	s. d.	s. d.
Butter	1 0	1 0	1 2	1 4	1 1
Margarine	0	1	1	1	1
Other Fats	1	1	1	2	1
Sugar	4	5	5	6	5
Preserves	2	4	4	5	3
Milk liquid, milk whole condensed and milk whole dried	8	1 3	1 9	2 1	1 3
Skimmed milk and buttermilk and skimmed condensed milk	1	0	0	1	1
Cheese	1	2	3	2	2
Eggs	5	11	1 4	2 2	11
Beef and veal	7	1 2	1 4	1 8	1 0
Mutton and lamb	1	5	1 1	2 0	6
Pork	1	1	2	5	1
Corn Beef, Mutton and Pork ..	4	3	7	2	4
Bacon	4	8	1 3	1 5	8
Liver, Sheep	0	1	0	1	0
Liver, other	1	0	0	0	0
Other Offals	1	1	1	2	1
Cooked and Canned meat ..	1	1	4	4	2
Sausages (uncooked) ..	2	3	4	7	3
Other Meat Products ..	1	1	1	2	1
White Fish	1	2	4	5	2
Fat Fish, fresh	1	1	1	2	1
Potatoes, including Chips ..	7	10	10	1 0	10
Carrots	0	0	1	1	0
Green vegetables	2	3	6	6	3
Miscellaneous vegetables ..	1	2	2	2	2
Legumes, fresh	—	0	0	1	0
Pulses, dried	0	1	1	3	1
Pulses, canned	0	0	1	1	0
Tomatoes	1	2	3	6	2
Citrus fruits	0	0	1	1	0
Other fruit	0	1	2	2	1
Dried vine fruit	0	1	2	1	1
Flour and Bread	1 9	1 10	1 11	2 1	1 10
Biscuits, including wafers, excluding oatmeal biscuits ..	0	1	2	3	1
Cakes	0	1	4	10	2
Oatmeal and oat products ..	1	1	2	2	1
Breakfast cereals	0	0	1	0	0
Cereals (flour base) ..	0	0	1	1	0
Other cereals	1	1	3	3	1
Items having no food value (*a*)	4	5	7	9	6

(*a*) These include tea, coffee, condiments, etc.

TABLE 6C.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 102 MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
	Under 10/-	10/- — 15/-	15/— 20/-	Over 20/-	All middle-class families
	s. d.	s. d.	s. d.	s. d.	s. d.
Butter		1 1	1 0	1 3	1 1
Margarine		0	0	1	1
Other Fats		1	1	1	1
Sugar		4	4	5	4
Preserves		3	5	8	5
Milk liquid, milk whole condensed, and milk whole dried		1 6	2 0	2 3	1 10
Skimmed milk and buttermilk and skimmed condensed milk		0	0	0	0
Cheese		2	1	2	2
Eggs		1 1	1 4	1 11	1 4
Beef and veal		1 0	1 6	1 9	1 5
Mutton and lamb		7	1 1	1 10	1 2
Pork		1	2	3	2
Corn Beef, Mutton and Pork..	(*b*)	4	3	5	4
Bacon		5	11	1 10	1 0
Liver, sheep		1	0	1	1
Other offals		1	1	5	2
Cooked and canned meat ..		1	3	3	3
Sausages (uncooked) ..		4	4	6	5
Other meat products ..		1	1	1	1
White Fish		1	5	5	4
Fish, processed		—	0	1	0
Fat Fish, fresh		1	1	0	1
Fish, canned		0	0	1	0
Potatoes, including Chips ..		7	9	10	9
Carrots		0	0	2	1
Other roots		0	0	1	0
Green vegetables		3	5	6	5
Miscellaneous vegetables ..		1	2	4	2
Legumes, fresh		0	1	3	1
Pulses, dried		1	1	1	1
Pulses, canned		0	1	1	1
Tomatoes		2	6	9	5
Citrus fruits		1	2	3	2
Other fruit		3	7	9	6
Dried vine fruit		1	1	1	1
Other dried fruit		0	1	0	0
Flour and Bread		1 7	1 7	1 10	1 8
Biscuits, including wafers, excluding oatmeal biscuits ..		2	4	6	4
Cakes		3	5	1 0	6
Oatmeal and oat Products ..		1	1	3	1
Breakfast cereals		1	1	1	1
Cereals (flour base) ..		0	1	1	1
Other cereals		2	3	3	2
Patent drinks and patent foods		1	0	—	0
Soups and Extracts ..		0	1	1	1
Items having no food value (*a*)		6	7	11	9

(*a*) These include tea, coffee, condiments, etc.

(*b*) Insufficient families to give trustworthy data.

TABLE 7.—RECOMMENDED DAILY REQUIREMENTS OF NUTRIENTS PER HEAD (LEAGUE OF NATIONS TECHNICAL COMMISSION).

AGE IN YEARS	Under 1 year	1–3 years	4–7 years	8–12 years	13–15 years	16–17 years	18–21 years	MALES			FEMALES		
								Sedentary work	Medium work	Heavy work	Sedentary work	Medium work	Pregnant or Lactating
Calories	800	1,100	1,500	2,100	2,900	3,000	3,000	2,500	3,000	4,500	2,500	3,000	3,000
Protein gms. ..	20	42	50	65	95	100	90	70	70	70	60	60	80
Calcium gms. ..	0.4	1.1	1.3	1.4	1.5	1.4	1.1	0.8	0.8	0.8	0.8	0.8	1.5
Iron mgms.	3.0	5.0	8.0	13.0	16.0	15.0	13.0	10.0	10.0	10.0	10.0	10.0	13.0
Vitamin A i.u. ..	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	5,000
Vitamin B1 μgms. ..	360	495	675	945	1,305	900	900	900	900	900	750	750	1,800
[1]Riboflavin mgms. ..	0.6	0.9	1.1	1.6	2.1	2.3	2.4	1.9	1.9	1.9	1.5	1.5	3.0
[1]Niacin mgms. ..	4	6	7	11	14	16	16	13	13	13	11	11	23
Vitamin C i.u. ..	600	600	600	600	600	600	600	600	600	600	600	600	900

[1] Recommendations in respect of Riboflavin and Niacin taken from National Research Council's (U.S.A.) scale.

TABLE 8.—DAILY INTAKE OF NUTRIENTS OF 500 SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE PER DIET-HEAD WEEKLY.

Type of Family	Food expenditure perdiet-head weekly	Animal protein gms.	Vegetable protein gms.	Total protein gms.	Fat gms.	Carbo hydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B.1 µgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.
SLUM ..	Under 10/-	24	42	66	66	301	2062	630	14.6	2327	235	2562	1319	1.3	14	525
	10/- – 15/-	38	50	88	101	362	2709	823	19.6	2906	383	3289	1719	1.8	18	751
	15/- – 20/-	50	53	103	121	381	3025	986	22.6	4565	524	5089	1976	2.3	22	867
	Over 20/-	68	60	128	160	447	3740	1337	26.7	4508	763	5271	2469	3.0	26	1557
ARTISAN ..	Under 10/-	24	46	70	67	322	2171	667	15.4	2227	260	2487	1423	1.4	15	606
	10/- – 15/-	35	51	86	93	365	2641	901	18.4	3217	378	3595	1677	1.9	17	849
	15/- – 20/-	51	53	104	122	390	3074	1099	22.2	3413	630	4043	1997	2.3	20	1146
	Over 20/-	61	59	120	153	449	3653	1347	24.0	4806	846	5652	2256	2.9	24	1268
MIDDLE-CLASS	10/- – 15/-	36	44	80	93	331	2481	940	17.2	3780	351	4131	1494	1.9	16	942
	15/- – 20/-	45	48	93	110	363	2814	1133	19.3	2936	538	3474	1750	2.2	19	1491
	Over 20/-	61	53	114	151	414	3471	1304	24.0	4374	952	5326	2081	2.8	20	1569
ALL TYPES ..	Under 10/-	24	45	69	66	311	2115	653	15.0	2266	248	2514	1369	1.4	14	577
	10/- – 15/-	36	50	86	95	360	2639	884	18.6	3202	376	3578	1665	1.9	17	833
	15/- – 20/-	48	51	99	117	377	2958	1083	21.2	3501	567	4069	1895	2.3	20	1216
	Over 20/-	62	56	118	153	429	3564	1322	24.4	4524	894	5418	2187	2.9	22	1475

TABLE 9A.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 500 DUBLIN FAMILIES, CLASSIFIED ACCORDING TO INCOME.

Type of Family	Income per head weekly	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin Bl.	Riboflavin	Niacin	Vitamin C
SLUM	Under 10/-	104	97	51	154	87	157	84	128	78
	10/- – 15/-	119	103	69	157	94	179	99	142	78
	15/- – 20/-	122	114	71	170	96	196	105	148	103
	20/- – 30/-	143	114	88	205	133	214	123	174	142
	Over 30/-	156	112	107	210	142	230	134	176	154
	All families	129	107	77	180	110	195	109	155	116
ARTISAN ..	Under 10/-	117	110	57	163	118	188	95	158	138
	10/- – 15/-	115	104	61	154	83	175	93	142	113
	15/- – 20/-	117	109	74	163	108	181	109	151	125
	20/- – 30/-	137	117	94	181	112	208	124	161	141
	Over 30/-	145	113	112	193	140	211	132	167	171
	All families	130	111	83	174	114	197	115	157	139
MIDDLE-CLASS ..	20/- – 30/-	148	123	105	189	104	218	141	165	185
	Over 30/-	147	124	119	198	143	210	140	166	231
	All families	146	120	117	195	137	213	140	166	221
ALL TYPES ..	Under 10/-	111	103	55	159	101	181	89	142	107
	10/- – 15/-	117	104	65	155	91	177	97	143	94
	15/- – 20/-	119	111	73	165	104	186	108	150	117
	20/- – 30/-	140	117	94	189	120	211	126	165	144
	Over 30/-	148	117	115	198	142	214	136	168	195
	All families	133	112	87	180	117	199	118	158	148

TABLE 9B.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 500 DUBLIN FAMILIES, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Type of Family	Food Expenditure per diet-head weekly	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B1.	Ribo-flavin	Niacin	Vitamin C
SLUM ..	Under 10/-* ..	107	95	59	146	85	161	88	129	87
	10/- — 15/- ..	133	109	80	188	107	200	109	157	123
	15/- — 20/- ..	164	123	105	234	168	246	147	194	143
	Over 20/- ..	190	141	144	252	172	284	171	210	256
	All families ..	129	107	77	180	110	195	109	155	116
ARTISAN ..	Under 10/-* ..	106	96	58	143	82	166	87	135	100
	10/- — 15/- ..	131	113	84	174	119	197	116	151	141
	15/- — 20/- ..	162	126	116	234	134	243	143	178	190
	Over 20/- ..	182	134	145	178	185	270	170	202	209
	All families ..	130	111	83	174	114	197	115	157	139
MIDDLE-CLASS ..	10/- — 15/- ..	125	107	93	167	136	181	116	143	156
	15/- — 20/- ..	147	120	119	194	115	218	141	168	247
	Over 20/- ..	174	138	147	234	176	249	169	191	260
	All families ..	146	120	117	195	137	213	140	166	221
ALL TYPES ..	Under 10/- ..	106	95	59	144	83	163	88	132	91
	10/- — 15/- ..	131	111	84	177	118	196	114	152	137
	15/- — 20/- ..	157	122	114	213	135	234	143	178	201
	Over 20/- ..	179	137	146	219	180	260	170	197	244
	All families ..	133	112	87	180	117	199	118	158	148

*Included with these families are five families (three slum and two artisan) whose food-expenditure per diet-head per week was less than 5/-. The nutrient intakes of these five families, expressed as a percentage of their requirements, are given in the following table :

Type of Family	Food Expenditure	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B1	Riboflavin	Niacin	Vitamin C
Slum ..	Under 5/- ..	78	66	36	99	34	106	55	75	33
,,	,, ..	65	60	50	83	50	112	45	74	47
,,	,, ..	38	50	38	50	50	60	67	28	25
Artisan ..	,, ..	37	40	41	46	55	69	40	50	61
,,	,, ..	67	64	45	78	53	112	50	75	18

TABLE 9C.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 500 DUBLIN FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Type of Family	No. of persons in family	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B 1	Riboflavin	Niacin	Vitamin C
SLUM ..	1 — 2 ..	147	108	110	203	124	226	128	169	147
	3 — 4 ..	134	111	87	191	115	206	118	161	144
	5 — 7 ..	120	102	66	168	105	177	100	146	97
	8 — 11 ..	126	109	67	175	98	199	101	153	129
	All families ..	129	107	77	180	110	195	109	155	116
ARTISAN ..	1 — 2 ..	176	118	147	218	159	245	152	185	196
	3 — 4 ..	153	120	117	203	148	220	144	169	159
	5 — 7 ..	127	110	85	168	108	196	115	154	149
	8 — 11 ..	118	104	63	164	88	179	95	148	111
	All families ..	130	111	83	174	114	197	115	157	139
MIDDLE-CLASS ..	1 — 2 ..	164	130	147	215	205	231	165	186	194
	3 — 4 ..	149	118	129	199	146	207	148	161	232
	5 — 7 ..	148	122	113	195	125	218	141	170	235
	8 — 11 ..	133	107	92	167	112	190	108	144	184
	All families ..	146	120	117	195	137	213	140	166	221
ALL TYPES ..	1 — 2 ..	157	115	125	208	148	231	141	176	167
	3 — 4 ..	144	116	106	197	129	211	134	164	161
	5 — 7 ..	129	110	84	174	110	194	115	155	151
	8 — 11 ..	122	105	68	166	96	184	98	148	126
	All families ..	133	112	87	180	117	199	118	153	148

TABLE 10A.—PERCENTAGE OF TOTAL MEALS EATEN AS "BREAD AND SPREAD" AND AS "COOKED" MEALS BY PERSONS OF VARIOUS AGE-GROUPS IN SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO INCOME.

SLUM

Income per head weekly	Age 3-14 years		Age 15-19 years		Over 20 years	
	Bread and spread	Cooked	Bread and spread	Cooked	Bread and spread	Cooked
Under 10/- ..	48	31	(*a*)	(*a*)	54	30
10/- — 15/- ..	48	33	50	28	52	31
15/- — 20/- ..	40	42	47	41	45	41
20/- — 30/- ..	38	45	42	41	40	47
Over 30/- ..	38	54	(*a*)	(*a*)	34	54
All Slum families ..	44	38	47	37	44	42

ARTISAN

Income per head weekly	Age 3-14 years		Age 15-19 years		Over 20 years	
	Bread and Spread	Cooked	Bread and Spread	Cooked	Bread and Spread	Cooked
Under 10/- ..	50	36	50	40	48	41
10/- — 15/- ..	40	37	48	34	41	42
15/- — 20/- ..	34	43	39	48	32	52
20/- — 30/- ..	31	46	37	48	33	53
Over 30/- ..	22	52	31	52	27	60
All Artisan families	36	42	40	45	33	53

MIDDLE-CLASS

Income per head weekly	Age 3-14 years		Age 15-19 years		Over 20 years	
	Bread and spread	Cooked	Bread and spread	Cooked	Bread and spread	Cooked
Under 10/- ..	—	—	—	—	(*a*)	(*a*)
10/- — 15/- ..	(*a*)	(*a*)	—	—	(*a*)	(*a*)
15/- — 20/- ..	—	(*a*)	—	—	—	(*a*)
20/- — 30/- ..	19	51	(*a*)	(*a*)	34	55
Over 30/- ..	17	51	23	59	25	58
All Middle-Class families ..	18	52	25	60	27	58

"Bread and Spread" meals in Tables 10A, 10B and 10C mean Tea, etc. with bread and butter, margarine, jam or other such spread.

"Cooked" meals in Tables 10A, 10B and 10C mean eggs, bacon, sausages, cooked meat (hot or cold) or vegetables.

(*a*) Insufficient numbers of meals to give trustworthy data.

TABLE 10B.—PERCENTAGE OF TOTAL MEALS EATEN AS "BREAD AND SPREAD" AND AS "COOKED" MEALS BY PERSONS OF VARIOUS AGE-GROUPS IN SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

SLUM

Food Expenditure per diet-head weekly	Age 3-14 years		Age 15-19 years		Over 20 years	
	Bread and spread	Cooked	Bread and spread	Cooked	Bread and spread	Cooked
Under 10/- ..	50	31	60	25	54	30
10/- — 15/- ..	38	44	41	42	42	44
15/- — 20/- ..	37	49	31	55	35	53
Over 20/- ..	(*a*)	(*a*)	21	61	25	61
All Slum families ..	44	38	47	37	44	42

ARTISAN

Food Expenditure per diet-head weekly	Age 3-14 years		Age 15-19 years		Over 20 years	
	Bread and spread	Cooked	Bread and spread	Cooked	Bread and spread	Cooked
Under 10/- ..	45	36	50	37	44	43
10/- — 15/- ..	32	45	38	47	34	53
15/- — 20/- ..	21	57	(*a*)	(*a*)	27	58
Over 20/- ..	(*a*)	(*a*)	(*a*)	(*a*)	19	67
All Artisan families	36	42	40	45	33	53

MIDDLE-CLASS

Food Expenditure per diet-head weekly	Age 3-14 years		Age 15-19 years		Over 20 years	
	Bread and spread	Cooked	Bread and spread	Cooked	Bread and spread	Cooked
Under 10/- ..	19	44	—	—	53	42
10/- — 15/- ..	21	46	(*a*)	(*a*)	30	57
15/- — 20/- ..	14	58	27	60	26	55
Over 20/- ..	24	57	(*a*)	(*a*)	22	64
All Middle-Class families ..	18	52	25	60	27	58

(*a*) Insufficient numbers of meals to give trustworthy data.

TABLE 10C.—PERCENTAGE OF TOTAL MEALS EATEN AS "BREAD AND SPREAD" AND AS "COOKED" MEALS BY PERSONS OF VARIOUS AGE-GROUPS IN SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO SIZE OF FAMILY.

SLUM

Family Group	Age 3-14 years		Age 15-19 years		Over 20 years	
	Bread and spread	Cooked	Bread and spread	Cooked	Bread and spread	Cooked
1 or 2 persons ..	(*a*)	(*a*)	(*a*)	(*a*)	42	43
3 or 4 persons ..	40	37	46	30	45	40
5, 6 or 7 persons ..	45	38	51	39	46	41
8, 9, 10 or 11 persons	51	37	35	44	38	51
Over 11 persons ..	—	—	—	—	—	—
All Slum families ..	44	38	47	37	44	42

ARTISAN

Family Group	Age 3-14 years		Age 15-19 years		Over 20 years	
	Bread and spread	Cooked	Bread and spread	Cooked	Bread and spread	Cooked
1 or 2 persons ..	—	—	(*a*)	(*a*)	30	56
3 or 4 persons ..	26	51	(*a*)	(*a*)	30	56
5, 6 or 7 persons ..	34	43	40	45	33	53
8, 9, 10 or 11 persons	42	38	46	41	40	48
Over 11 persons ..	36	43	33	51	27	59
All Artisan families	36	42	40	45	33	53

MIDDLE-CLASS

Family Group	Age 3-14 years		Age 15-19 years		Over 20 years	
	Bread and spread	Cooked	Bread and spread	Cooked	Bread and spread	Cooked
1 or 2 persons ..	(*a*)	(*a*)	—	—	22	65
3 or 4 persons ..	18	53	(*a*)	(*a*)	26	55
5, 6 or 7 persons ..	17	54	(*a*)	(*a*)	27	56
8, 9, 10 or 11 persons	21	47	29	62	32	61
Over 11 persons ..	(*a*)	(*a*)	—	—	25	75
All Middle-Class families ..	18	52	25	60	27	58

(*a*) Insufficient numbers of meals to give trustworthy data.

TABLE 11A.—PERCENTAGE FREQUENCY OF VARIOUS KINDS OF MEALS EATEN BY VARIOUS AGE-GROUPS IN 188 SLUM FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

TYPE OF MEAL	Both sexes 3 to 14 years					Both sexes 15 to 19 years					Both sexes over 20 years				
	Food expenditure per diet-head weekly					Food expenditure per diet-head weekly					Food expenditure per diet-head weekly				
	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	Total	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	Total	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	Total
BREAKFASTS															
Milk drink or bread and spread with(out) drink . .	66	48	48		57	91	40			56	74	53	35	19	54
Cereals with(out) bread and spread	23	20	7	(*a*)	20	3	25	(*a*)	(*a*)	17	10	7	12	21	10
Cereals with cooked protein	—	4	5		2	—	0			1	0	2	4	6	2
Cooked protein without vegetables	10	28	36		20	6	34			26	16	37	48	54	33
Other breakfasts . .	1	—	4		1	—	1			0	0	1	1	–	1
All breakfasts . .	100	100	100		100	100	100			100	100	100	100	100	100
DINNERS															
Milk drink or bread and spread with(out) drink . .	6	—	—		3	14	5			8	8	2	—	4	3
Cooked protein with(out) vegetables	32	18	10	(*a*)	25	40	8	(*a*)	(*a*)	23	33	23	22	12	26
Cooked protein and vegetables with bread and spread or pudding . .	53	78	88		65	40	86			66	48	71	76	84	66
Other dinners	9	4	2		7	6	1			3	11	4	2	—	5
All dinners	100	100	100		100	100	100			100	100	100	100	100	100

TEAS															
Milk drink or bread and spread with(out) drink ..	73	46	44		60	85	47			61	80	52	39	18	57
Cereals with(out) bread and spread	1	1	—		1	—	—			—	—	1	—	—	0
Cooked protein with(out) vegetables	18	32	37	(a)	25	10	20	(a)	(a)	20	14	26	38	55	26
Cooked protein and vegetables with bread and spread or pudding ..	0	0	2		1	—	10			5	1	4	9	13	4
Cake	4	6	8		5	1	6			3	2	7	3	6	5
Other teas	4	15	9		8	4	17			11	3	10	11	8	8
All teas	100	100	100		100	100	100			100	100	100	100	100	100
SUPPERS															
No meal	40	30	9		32	44	19			29	33	24	14	17	25
Milk drink, or bread and spread with(out) drink ..	57	59	58		58	49	70			62	56	61	68	60	60
Cereals with(out) bread and spread	0	2	—	(a)	1	1	—	(a)	(a)	0	4	1	2	—	2
Cooked protein without vegetables	0	6	14		4	1	7			4	2	6	7	16	6
Cake	1	1	10		2	—	—			0	0	2	3	2	2
Other suppers ..	2	2	9		3	5	4			5	5	6	6	5	5
All suppers	100	100	100		100	100	100			100	100	100	100	100	100

(a) Insufficient numbers of meals to give trustworthy data.

TABLE 11B.—PERCENTAGE FREQUENCY OF VARIOUS KINDS OF MEALS EATEN BY VARIOUS AGE-GROUPS IN 210 ARTISAN FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Type of Meal	Both sexes 3 to 14 years					Both sexes 15 to 19 years					Both sexes over 20 years				
	Food Expenditure per diet-head weekly					Food Expenditure per diet-head weekly					Food Expenditure per diet-head weekly				
	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	Total	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	Total	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	Total
BREAKFASTS															
Milk drink, or bread and spread with(out) drink . .	55	35	8	(*a*)	41	65	43	(*a*)	(*a*)	47	52	32	18	12	31
Cereals with(out) bread and spread	29	38	37		34	13	20			16	15	19	16	13	17
Cereals with cooked protein	1	6	18		5	—	5			3	2	7	10	8	7
Cooked protein without vegetables	15	21	37		20	22	31			33	30	42	55	67	44
Other Breakfasts . .	—	0	0		0	0	1			1	1	0	1	—	1
All Breakfasts . .	100	100	100		100	100	100			100	100	100	100	100	100
DINNERS															
Milk drink or bread and spread with(out) drink . .	2	0	0	(*a*)	1	4	1	(*a*)	(*a*)	3	3	1	1	3	2
Cooked protein with(out) vegetables	21	9	9		14	23	16			17	24	12	11	12	15
Cooked protein and vegetables with bread and spread or pudding . .	69	87	89		80	66	81			76	67	84	84	82	80
Other Dinners	8	4	2		5	7	2			4	6	3	4	3	3
All Dinners . .	100	100	100		100	100	100			100	100	100	100	100	100

TEAS															
Milk drink or bread and spread with(out) drink	63	40	12		47	66	40			46	55	34	23	9	34
Cereals with(out) bread and spread	—	0	1		0	—	0			0	—	0	1	—	0
Cooked protein with(out) vegetables	17	31	47	(*a*)	26	16	31	(*a*)	(*a*)	27	21	39	46	47	37
Cooked protein and vegetables with bread and spread or pudding ..	2	5	11		5	4	6			7	7	9	7	28	10
Cake	3	6	7		5	4	6			6	3	4	6	7	5
Other Teas	15	18	22		17	10	17			14	14	14	17	9	14
All Teas	100	100	100		100	100	100			100	100	100	100	100	100
SUPPERS															
No meal	33	32	17		31	21	13			16	22	12	17	9	15
Milk drink or bread and spread with(out) drink ..	58	54	67		58	65	65			64	64	68	65	51	65
Cereals with(out) bread and spread	3	3	5	(*a*)	3	3	4	(*a*)	(*a*)	3	2	3	1	11	3
Cooked protein without vegetables	2	2	2		2	6	6			6	7	6	7	18	8
Cake	0	1	0		0	0	2			3	1	2	5	3	2
Other Suppers	4	8	9		6	5	10			8	4	9	5	8	7
All Suppers ..	100	100	100		100	100	100			100	100	100	100	100	100

(*a*) Insufficient numbers of meals to give trustworthy data.

TABLE 11C.—PERCENTAGE FREQUENCY OF VARIOUS KINDS OF MEALS EATEN BY VARIOUS AGE-GROUPS IN 102 MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Type of Meal	Both sexes 3 to 14 years					Both sexes 15 to 19 years					Both sexes over 20 years				
	Food Expenditure per diet-head weekly					Food Expenditure per diet-head weekly					Food Expenditure per diet-head weekly				
	Under 10/–	10/– to 15/–	15/– to 20/–	Over 20/–	Total	Under 10/–	10/– to 15/–	15/– to 20/–	Over 20/–	Total	Under 10/–	10/– to 15/–	15/– to 20/–	Over 20/–	Total
BREAKFASTS															
Milk drink or bread and spread with(out) drink	33	18	4	39	15	—	20	15		18	71	29	21	21	25
Cereals with(out) bread and spread	48	48	32	13	37	—	16	20	(*a*)	15	6	18	22	9	16
Cereals with cooked protein	—	10	31	21	20	—	9	13		12	—	16	15	27	19
Cooked protein without vegetables	19	21	26	19	23	—	46	46		45	23	35	40	37	36
Other breakfasts ..	—	3	7	8	5	—	9	6		10	—	2	2	6	4
All breakfasts ..	100	100	100	100	100	—	100	100		100	100	100	100	100	100
DINNERS															
Milk drink and bread and spread with(out) drink	—	—	—	—	—	—		5		3	4	2	0	0	1
Cooked protein with(out) vegetables	36	9	3	—	7	—		2		4	5	12	5	5	6
Cooked protein and vegetables with bread and spread or pudding ..	57	79	94	99	86	—	(*a*)	91	(*a*)	92	86	81	89	92	88
Other dinners	7	12	3	1	7	—		2		1	5	5	6	3	5
All dinners	100	100	100	100	100			100		100	100	100	100	100	100

TEAS															
Milk drink or bread and spread with(out) drink ..	43	24	11	12	18	—		4		11	59	25	18	11	19
Cereals with(out) bread and spread	—	7	1	—	3	—		—		—	—	—	0	—	0
Cooked protein with(out) vegetables	43	42	43	57	44	—	(*a*)	35	(*a*)	47	36	48	40	53	46
Cooked protein and vegetables with bread and spread or pudding ..	—	5	10	20	9	—		22		17	—	10	14	18	14
Cake	—	6	8	—	6	—		9		6	—	3	7	8	6
Other teas	14	16	27	11	20	—		30		19	5	14	21	10	15
All teas	100	100	100	100	100	—		100		100	100	100	100	100	100
SUPPERS															
No meal	100	43	44	32	45	—		7		11	9	13	16	8	13
Milk drink, or bread and spread with(out) drink	—	42	43	45	40	—		84		66	78	63	61	55	60
Cereals with(out) bread and spread	—	4	—	—	2	—	(*a*)	—	(*a*)	6	—	4	5	3	4
Cooked protein without vegetables	—	9	3	7	6	—		3		7	13	12	8	17	12
Cake	—	—	2	6	1	—		2		5	—	4	4	4	4
Other Suppers	—	2	8	10	6	—		4		5	—	4	6	13	7
All suppers ..	100	100	100	100	100	—		100		100	100	100	100	100	100

(*a*) Insufficient numbers of meals to give trustworthy data.

TABLE 12A.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 500 SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO INCOME.

TYPE OF FAMILY	Income per head weekly						
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
SLUM							
Number of families ..	32	45	26	42	39	(*a*)	188
Number of persons ..	140	183	115	165	129		754
Number of rooms.. ..	38	59	35	61	68		268
Rooms per family ..	1.2	1.3	1.3	1.5	1.7		1.4
Persons per room ..	3.7	3.1	3.3	2.7	1.9		2.8
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
ARTISAN							
Number of families ..	16	25	32	62	70	(*a*)	210
Number of persons ..	130	194	214	331	289		1,191
Number of rooms.. ..	59	104	138	283	323		931
Rooms per family ..	3.7	4.2	4.3	4.6	4.6		4.4
Persons per room ..	2.2	1.9	1.6	1.2	0.9		1.3
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
MIDDLE-CLASS							
Number of families ..	(*a*)	(*a*)	(*a*)	13	82	(*a*)	102
Number of persons ..				78	361		478
Number of rooms ..				75	460		572
Rooms per family ..				5.8	5.6		5.6
Persons per room ..				1.0	0.8		0.8
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All Incomes
ALL TYPES OF FAMILY							
Number of families ..	49	71	59	117	191	13	500
Number of persons ..	274	385	334	574	779	77	2,423
Number of rooms ..	103	170	178	419	851	50	1,771
Rooms per family ..	2.1	2.4	3.0	3.6	4.5	3.8	3.5
Persons per room ..	2.7	2.3	1.9	1.4	0.9	1.5	1.4

(*a*) Insufficient families to give trustworthy data.

TABLE 12B.—AVERAGE NUMBER OF PERSONS PER FAMILY AND PERSONS PER ROOM IN 500 SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Type of Family	Food expenditure per diet-head weekly				
	Under 10/–	10/- — 15/–	15/- — 20/-	Over 20/–	All expenditures
SLUM					
Number of families	71	70	33	14	188
Number of persons	315	294	111	34	754
Number of rooms	87	108	50	23	268
Rooms per family	1.2	1.5	1.5	1.6	1.4
Persons per room	3.6	2.7	2.2	1.5	2.8
	Under 10/–	10/- — 15/–	15/- — 20/-	Over 20/–	All expenditures
ARTISAN					
Number of families	50	96	42	22	210
Number of persons	370	580	166	75	1,191
Number of rooms	205	447	173	106	931
Rooms per family	4.1	4.7	4.1	4.8	4.4
Persons per room	1.8	1.3	1.0	0.7	1.3
	Under 10/–	10/- — 15/-	15/- — 20/-	Over 20/–	All expenditures
MIDDLE-CLASS					
Number of families	(*a*)	25	37	37	102
Number of persons		136	186	136	478
Number of rooms		139	200	216	572
Rooms per family		5.6	5.4	5.8	5.6
Persons per room		1.0	0.9	0.6	0.8
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
ALL TYPES OF FAMILY					
Number of families	124	191	112	73	500
Number of persons	705	1,010	463	245	2,423
Number of rooms	309	694	423	345	1,771
Rooms per family	2.5	3.6	3.8	4.7	3.5
Persons per room	2.3	1.5	1.1	0.7	1.4

(*a*) Insufficient families to give trustworthy data.

TABLE 12C.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 500 SLUM, ARTISAN AND MIDDLE-CLASS FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

TYPE OF FAMILY	Number of Persons in Family					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
SLUM						
Number of families	49	72	56	11	(*a*)	188
Number of persons	86	252	319	97		754
Number of rooms	62	97	86	23		268
Rooms per family	1.3	1.3	1.5	2.1		1.4
Persons per room	1.4	2.6	3.7	4.2		2.8
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
ARTISAN						
Number of families	17	58	88	39	(*a*)	210
Number of persons	30	205	512	341		1,191
Number of rooms	55	267	407	166		931
Rooms per family	3.2	4.6	4.6	4.3		4.4
Persons per room	0.5	0.8	1.3	2.1		1.3
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
MIDDLE-CLASS						
Number of families	15	37	40	9	(*a*)	102
Number of persons	29	131	228	78		478
Number of rooms	72	207	228	57		572
Rooms per family	4.8	5.6	5.7	6.3		5.6
Persons per room	0.4	0.6	1.0	1.4		0.8
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
ALL TYPES OF FAMILY						
Number of families	81	167	184	59	(*a*)	500
Number of persons	145	588	1,059	516		2,423
Number of rooms	189	571	721	246		1,771
Rooms per family	2.3	3.4	3.9	4.2		3.5
Persons per room	0.8	1.0	1.5	2.1		1.4

(*a*) Insufficient families to give trustworthy data.

APPENDIX.

As pointed out in the introduction, the classification of type of family was not based on the area of residence but rather on the type of dwelling. The sample proved to be slightly biassed in favour of the slum population. An analysis was made, in fact, of the occupied males in each of the three family types (slum, artisan and middle-class) and they were classified according to four main occupational groups. By comparing the occupational distribution of the occupied males in the three family divisions of the sample with the occupational distribution of all occupied males in Dublin according to the Census of 1936, multipliers of 3, 7 and 5 were estimated, by least square procedure, as weights to be applied to the averages of Slum, Artisan and Middle-Class divisions, respectively, in order to find averages for the City of Dublin as a whole.

The averages of the daily intake of some of the nutrients calculated from the sample were compared with the averages of the daily intake of these same nutrients in Dublin as a whole, as found by applying the weights 3, 7 and 5 to the average intake of each of the three divisions. The results are shown in the following table.

Average daily intake of nutrients per diet-head in Dublin as a whole.

	Animal protein gms.	Vegetable protein gms.	Total protein gms.	Fat gms.	Carbohydrate gms.	Calcium mgms.	Calories
Sample average..	38	49	87	97	356	899	2641
Dublin average..	39	49	88	100	358	941	2685

The table shows that the sample total gives intake figures which in most cases do not differ significantly from the weighted averages. In particular, the difference between the two figures for calorie intake is well within the sampling error, and in general, the difference between the two sets of figures cannot be considered significant in a sample of 500 families. It is therefore considered that, throughout all the tables, the figures given for " all types of family " can be fairly regarded as applying to the total population of Dublin.

(9020).G3181.Wt.1576/1333.3.3.3.1500.2/49.W.P.W.Ltd.2

NATIONAL NUTRITION SURVEY

Part II

DIETARY SURVEY
OF
THE CONGESTED DISTRICTS

DUBLIN:
PUBLISHED BY THE STATIONERY OFFICE

To be purchased directly from the
GOVERNMENT PUBLICATIONS SALE OFFICE
3-4 COLLEGE STREET, DUBLIN
or through any Bookseller

(P. No. 9566) **Price One Shilling**

FOREWORD

The present report is the second of a series in which it is proposed to present the results of the National Nutrition Survey. The first report, already published, dealt with the general history and scope of the survey and presented the results of the dietary investigation carried out in Dublin City. Full details of techniques, sampling, methods of calculation, etc., were given in the Dublin report, and these are not repeated here except where certain modifications have been introduced to meet special circumstances.

The present report gives the results of the dietary surveys carried out in the "Congested Districts."

An Roinn Sláinte,
Iúil, 1949.

NATIONAL NUTRITION SURVEY

DIETARY SURVEY—CONGESTED DISTRICTS SAMPLE.

Congested Districts.

The survey to which this report relates was made on 200 families living in what used to be called the Congested Districts. Results will be presented in due course of a survey of families living in rural areas all over Ireland, but as economic conditions in the Congested Districts were known to differ from those of rural areas generally, it was decided to study them separately.

The former "Congested Districts" have been aptly if loosely described as "rural slums." They comprise specific areas lying mostly along the Western seaboard where the land is of the poorest quality and where the conditions of life generally are harder than elsewhere. The holdings are small—farms of less than 10 acres are very common—and the combination of small holdings and poor land makes for the position that a high proportion of the agricultural land in the area is not capable of providing a livelihood for the occupiers. In the Counties of Mayo and Galway, for example, about 22 per cent of the holdings are of less than 10 acres, and this in an area where the land is of the poorest. Large tracts of country consist of bogs, moorland and mountain, and it is largely the uselessness of these for farming purposes which produces the congestion in the remainder of the area. Sometimes the holding is divided up into several isolated parcels, making the working of it more difficult still. A journey through such an area as Connemara shows evidence on all sides of the fierce struggle for existence, and cultivation is carried on on land which would obviously be discarded at once for this purpose were there any better available. In both Connemara and North Donegal, the wonder is that anything can be made to grow in land where rock appears every few feet.

In these districts, there is relatively little buying of foods, the families living mainly off the land and their fare being of the simplest character. When harvesting is in progress, all members of the family, and indeed of the community, are pressed into service, and the work takes on a communal character. Along the coast, inshore fishing is carried on, and in many parts, it is customary for most of the able-bodied men of the district to go to England and Scotland as migratory labourers to eke out the livelihood possible to them at home; in some parts, young women and girls go too, to earn money in the fishing areas of Great Britain.

The care of these districts has been a continued preoccupation of successive Governments for years; the Congested Districts Board and later the Land Commission have specifically undertaken measures for the relief of congestion, and various rural industries and schemes of relief have been fostered under Government auspices.

There were certain practical considerations which gave rise to difficulty in doing survey work in districts of this kind ; indeed they applied also to rural areas in general. In order to allow for the lodging of the investigators during the survey week, it was necessary to select families living within a certain radius—say five miles—of a centre where lodging was to be had. It was therefore not feasible to carry out these investigations in areas which were at a greater distance than this (or something like it) from such centres, so that households in remote parts of the congested districts could not be visited. Whether the conditions which were being studied would have been found materially different in such areas it is impossible to say, but it is reasonable to suppose that, on account of less ready access to centres of population, it may have been so.

Scope of Survey.

It seemed likely that, in these areas, on account of the stringency of resources, economic circumstances and especially supplies of food might differ significantly at different seasons of the year, and therefore the 200 families were investigated twice, first in the period September and October, 1946, and again in the period March and April, 1947. The families were more or less evenly spread amongst the counties of Donegal, Leitrim, Mayo, Galway and Kerry. Every effort was made to examine the identical families at the two seasons, and in fact of the 200 families examined in the second period, as many as 187 had already been studied at the earlier examination. Such a response at the second examination was very satisfactory and showed that virtually no objection to co-operating in the work arose as a result of the first survey.

Method.

The methods of survey used were, in the main, those used in the Dublin survey, but differed in a number of respects on account of differing customs in the persons studied. In these areas, as in the rural areas generally, it is normal practice to draw for the day to day needs of the home on bulk stores of certain foods such as potatoes and other vegetables, flour and milk. It was, therefore, not possible to calculate the quantities used by the normal procedure of recording the weights of foods bought and subtracting the weights of those amounts which remained at the end of the survey week to arrive at the amounts consumed. Where foods such as potatoes were used from day to day from a bulk store, the investigator weighed say a potful, and asked the informant to keep a record of the numbers of such used each day by the family. Care was taken to exclude from these records the quantities of potatoes, etc. used for feeding animals. Similarly in the case of flour, some homely measure was weighed full, and the consumption from day to day was worked out on the basis of the number of such measures used.

In the Congested Districts, where large proportions of certain foods used were home-grown or home-produced (potatoes, eggs, milk, etc.) it was decided to differentiate between these and bought food in presenting the tables, showing separately the amount of the food bought and the amount produced at home. Food obtained free—

as in the form of school meals and free milk—was included with bought food, but was not costed.

When foods were in question which were prepared in the home and which contained quantities of foods which had to be bought as well as amounts of other foods which were home-produced (such as home-made jam, containing bought sugar and home-produced fruit, or soda-bread, containing bought flour and home-produced milk), the convention was adopted of assuming that half of each food was home-produced and half bought. Only in this way was it possible to allocate the estimated cost of the ingredients, and it was thought that a division on these lines was sufficiently accurate for the purpose of showing the proportions home-produced and bought.

Food Expenditure.

The home-produced foods were costed by the investigators at the current local retail price in order to estimate the amount of money spent on food. It is realised that, where considerable proportions of the total consumption are home-produced, such estimates become unreal and artificial. For example, the value attributed in table 4 to " home-won " fish in the two smaller sized family groups seems very small in comparison to the quantity as shown in table 2. This arose because in some of these families, large quantities of mussels had been consumed, and when these were costed by the investigators, it appeared that the people generally regarded them as having a very small value in cash. Nevertheless, the estimates have been used to produce figures (table 4) which at least indicate, even roughly, the food expenditures of the familes studied.

In general, the purpose of table 4 is to show what the value of the food eaten would have been at normal prices, and how much of this cost was represented by foods produced at home.

It was originally intended to investigate the incomes of the families surveyed, and to present tables showing the results of the food survey of these families, when classified according to income. This unfortunately proved impossible, and estimates of income were so approximate as to be quite valueless for the purpose intended. It is, however, a fact that practically all the families surveyed were very poor. The plan of classifying the families according to the amounts of money spent on food—which could be held in some sense to be a reflection of income—was discarded for the reason stated earlier, that where considerable amounts of foodstuffs were home-produced, such a classification became largely unreal. For these reasons, the only classification presented in this report is one according to the size of the family.

Two further points obviously affect this aspect of the survey, and the first must also be taken into account in considering the conclusions to be drawn from the results.

During the months of July and August large numbers of people spend their holidays in some of these districts. The family income of the inhabitants will be increased both directly, if guests stay at the house, and indirectly, by the sale of food to local hotels. More important is the effect this influx of tourists must have on the amount of food available in the homes of inhabitants, for during the tourist season it becomes very difficult to get such foods as milk and eggs, when one would have expected them to be relatively plentiful. It is probable, therefore, that the autumn consumption figures in the various tables may not represent the average summer consumption of the families concerned, since at the time of the survey the season would have greatly slackened and milk, eggs, etc. would again be freely available to the people of the district. A few of the districts visited would not be affected by the tourist traffic.

Finally, throughout these districts generally, certain State funds are available which are not available to rural areas in other parts of the country. It is possible, therefore, that certain of these latter areas which do not receive special State assistance, may be in a less favourable economic position than those to which this report relates. Even within the Congested Districts themselves, differences exist here and there in the amounts of these grants, the difference depending on local circumstances. It is considered, however, that even allowing for all such subventions, the areas now described are economically the worst in the country.

The remainder of the methods used coincided more or less precisely with those already described in connection with the Dublin survey, and the sections of the Dublin report dealing with waste, diet-heads, calculation of nutrients, calculation of nutrient requirements and nutritional adequacy of the diets all apply to the present report.

Standards.

The standards of requirements taken were the same as in the Dublin survey, and, for convenience, are reproduced here as table 5.

Reliability of Results.

The questions that were raised in the Dublin survey concerning the reliability of the results and the need for checking them against known statistics apply with equal force to the present results. The relative consistency of the changes shown from one family group to another in the present survey also indicates reliability. It was possible only in the case of one item—potatoes—to compare consumption figures from the survey with statistics from other sources.

The Department of Industry and Commerce calculates each year the consumption of potatoes by persons living on farms from the agricultural census, and for several recent years, the nett consumption was estimated at slightly more than 6 cwt. per head per annum. The survey figure of 210 oz. per head per week, which remained constant at the two seasons, works out at an annual consumption of 6.1 cwt. per annum. The amount of the sugar ration in the autumn period stood at 12 oz. per head per week while the survey figure for the same period was 11.7 oz.; by the following spring, the ration had been reduced to 8 oz. and the survey figure at this time was 7.5 oz. Rationing of bread and flour was introduced in January, 1947, that is between the two periods of survey; the amounts fixed were 6 lb. per head per week of bread or 4½ lb. per head per week of flour. Persons doing certain types of work such as agricultural labour were allowed extra rations; in addition, persons who grew their own wheat were allowed to retain 1 barrel of the wheat per head in the household per annum, over and above the ration; finally, the survey figure for flour includes maize-meal, of which small quantities were found to be consumed and which was not rationed. Considering these three points, it seems likely that the spring consumption figure of 83.2 oz. per head per week of all bread and flour expressed as flour indicates sufficiently close correspondence with the ration of 72 oz.

The general conclusion from these calculations seems to be that the figures now published are sufficiently accurate.

Flour Extraction and Fortification.

At the time of the autumn survey, the extraction rate of flour was 90 per cent, and the flour was fortified with acid calcium phosphate. When bread rationing was introduced in January 1947, the extraction rate was lowered to 85 per cent, and the addition of the calcium salt was continued. It was assumed that this fortification was a universal practice during the period of the survey.

Housing.

As in the Dublin survey, the opportunity was taken, when the investigators visited the houses, of obtaining particulars as to the number of rooms occupied by the families studied, and the results of this part of the investigation appear in table 10.

Tables.

The results of the survey are presented in the tables which follow, each table showing separate figures for the autumn and spring surveys. The tables may be grouped under the following heads :—

(1) Constitution of sample (Table 1.)

(2) Consumption of and expenditure on various groups of foods (Tables 2, 3 and 4).

(3) Intake of nutrients, and the percentage which this intake represents of standard nutrient requirements (Tables 6 and 7).

(4) Types of meals eaten (Tables 8 and 9).

(5) Housing, etc. conditions of families making up the sample (Table 10).

EXPLANATORY NOTES.

In the various tables, the symbol "–" is used to mean none, and "0.0" to mean an insignificant amount.

Composition Table.

Table I shows the composition by ages of the 200 families examined. It brings out, by the similarity of the figures for the two seasons, the high degree of success attained in trying to examine the same families twice. It shows also the percentages of the total sample which consisted of families of specified sizes, for example that about 12 per cent of all the families contained more than 7 persons; in fact the commonest size of family met with contained 3 or 4 persons.

Consumption Table.

Tabe 2 shows the average consumption per diet-head per week of the families surveyed, when classified according to size of family. The first striking point is the very marked difference in consumption between the autumn and spring surveys. With the exception of eggs, cereals other than flour (such as oatmeal, barley, etc.) and potatoes, every item shows a higher consumption—in some cases much higher—in the autumn than in the spring. The average consumption of milk in the autumn for the whole sample reached over 10 pints per diet-head per week, and stood at 5½ pints in the spring. These figures include not only whole milk used for drinking, but also skimmed milk used either for drinking or for cooking (for example, in the home baking of bread) and condensed milk. The consumption of cheese at 0.6 oz. and 0.3 oz. in the autumn and spring respectively indicates the consistently small use made of this invaluable food.

As might be expected from the milk figures, the consumption of fats (mostly butter) was nearly twice as high (at 10.3 oz.) in autumn as in spring.

The consumption of meat is higher than might have been expected at 17.2 oz. per diet-head weekly in the autumn with only a moderate reduction to 13.3 oz. in the spring.

In the case of bread and flour, an enormous difference is seen between the consumption in the two seasons. In autumn, no less than 144.6 oz. per diet-head weekly (expressed as flour) was consumed; in the spring survey, the corresponding figure was found to be 83.2 oz. Incidentally, the rationing of bread and flour, as already mentioned, was introduced in January, 1947, giving 96 oz. of bread or 72 oz. of flour per head per week.

The consumption of potatoes remained steady at the relatively high figure of 210 oz. (13 lb.) per diet-head weekly in both seasons.

Vegetables showed about a three-fold and fruit a four-fold increase from spring to autumn. Both of these are as might be expected.

Sugar consumption was in close conformity with the rations in the two seasons. The consumption of preserves (jam, etc.) was twice as high and of "miscellaneous" items (cocoa, etc.) over twice as high in autumn as in spring.

Enquiries made in the various counties concerned as to the explanation of the seasonal differences elicited the opinions of experienced officers that, on the whole, the much greater consumption of practically all foodstuffs in September and October was influenced by the amount of outdoor work being done on the land at that time. It is noticeable that milk, fats and bread all show a marked difference, and during harvesting and (where fishing is done) fishing operations, it is the common practice for workers to take food from home with them ; this food normally consists of tea (with milk and sugar) and bread and butter. Tea, having no food value of itself, was not recorded separately as regards quantity, although its cost was noted and included in the appropriate table.

Certain of the differences in seasonal consumption were also influenced by the extent to which particular foods were available ; milk production would be higher in the flush autumn season than in the spring, affecting both the milk and butter figures ; on the other hand, hens would be laying in the spring whereas eggs are everywhere scarce in the autumn.

The foods showing the widest seasonal difference in consumption were flour and bread, where the general autumn consumption exceeded that in the spring by as much as 73 per cent. As this increase was not accompanied by a reduction in the consumption of other foods, but was rather a prominent feature of a general increase, it seems to indicate a need for more calories, this need in turn depending on heavier work.

The consumption of vegetables in the autumn season was not high at 20.5 oz. per diet-head weekly, but in the spring reached only 6.9 oz., a very small average. Similarly, fruit consumption was low at 3.4 oz. in the autumn, and in spring fell to less than one ounce.

Table 3 shows the consumption per diet-head per week of all the foods when listed individually, *i.e.*, not grouped together as in table 2. This table gives the average consumption figures of the whole 200 families together.

Expenditure Table.

Table 4 shows the cost of the various foods, consumed in the quantities shown in table 2. It is well to emphasize again the artificial nature of these cost figures, where such large proportions of the foods consumed were produced at home, *i.e.*, not bought ; the object in presenting the table is to show what the cost of the foods would have been if they had to be purchased. With this in mind, it may be noted that the difference in total " expenditure " per diet-head per week as between autumn and spring for the sample of 200 families as a whole was 2/1d., and that the two items contributing most to this difference were flour and bread, where the difference was 10d., and milk, where the difference was 9d. It is of interest to note the foods on which the greatest proportions of the expenditure were spent. In the autumn or better-fed season, expenditure on flour and bread amounted to just 20 per cent of the total, with milk next at nearly 17 per cent, meat next at almost 14 per cent, and potatoes and fats next at nearly 12 per cent each. In the spring expenditure on meat was highest at about 17 per cent, flour and bread next at 16 per cent, potatoes next at something over 14 per cent, and milk and eggs next at just less than 13 per cent each.

In table 4, certain miscellaneous items have been included which were not so included in table 2 where the quantities of the various foods consumed are shown. These are tea, coffee and condiments such as salt and pepper, etc., which have no real food value but which cost money nevertheless.

Requirement and Intake Tables.

In order to produce table 7, which shows the percentage of their requirements (in terms of the various named nutrients) that the several groups of families actually received, it was necessary first to calculate the actual *intake* of the groups separately, and then to calculate the *requirements* of the groups according to the standards shown in table 5, the requirement table taking into account the varying age-, sex- and occupation-structure of each group.

Special mention must be made here of the calorie requirements. It seems clear that the same people, doing heavy farm and other open air work in the autumn season and being much less active in the early spring season, would require more calories in autumn than in spring. The work of adult men was reckoned as medium or heavy, requiring daily allowances of 3,000 to 4,500 calories, according to the actual work they were doing, and of women as sedentary or medium, requiring 2,500 or 3,000 calories daily. In a group of this kind, it is probable that all the persons studied, including women and adolescents and probably even children, would be much more active at the autumn season, and their calorie needs would accordingly be increased. If this be so, it would have the effect of reducing somewhat the " percentage of requirements " shown in Table 7, because the requirements would be closer to the actual intakes than has been calculated. This is different from a survey of persons engaged on mixed occupations, where an overestimate in one case may be neutralized by an underestimate in another.

The intake table is reproduced as table 6 : it was not considered necessary to present the requirement table. But the intake figures alone cannot show the adequacy or otherwise of any given diet, and it is only when they are considered in relation to the corresponding requirement figures that a true picture of adequacy is seen.

The results of such a comparison are shown in table 7, where the intake figures of table 6 are expressed as a percentage of the requirement figures. Taking first the autumn survey, the high figures from the intake table are immediately reflected as giving extremely high percentages of requirements. Although the performance of heavy work is usually held not to increase the need for protein, nevertheless, the intake of large numbers of calories is seen to raise the ingestion of protein to high levels. The calorie requirement is amply met, as indeed is the requirement of all other nutrients except vitamin A. Even here, the percentage is over 100 except in large families, where it falls to 92.

Considering next the figures for the spring survey, on the whole the requirements are satisfactorily met—surprisingly so, in fact, as regards calcium, iron and most of the vitamins—but fall away markedly in vitamin A, and very slightly in vitamin C where large families are in question. The calorie intake is slightly over 100 per cent of requirements in all groups, though it may be well to mention here that these averages must obscure individual families where the figure falls below 100 per cent—this applies equally of course, to all the figures in the percentage table. The vitamin A requirement in the spring season is poorly met ; persons in families of all sizes fare badly in this respect, but especially so in the largest families where the vitamin A requirement is available only to the extent of 41 per cent. The important sources of this nutrient in ordinary diets are summer milk and butter, green vegetables and carrots, and offals, especially liver. In the present case, the intake of milk and butter, as well as of vegetables, is known to be much less in spring than in autumn, and milk and butter contain much more vitamin A in the late summer, when the cows are fed on pasture, than in the period March–April. The principal vegetable met with was cabbage, never a very rich source of vitamin A.

The diminution in intake of vitamin C between the two periods of survey can be accounted for by the reduced consumption of fruit and vegetables, but the steady ingestion of large quantities of potatoes has kept the intake of the vitamin at a satisfactory level, even in the spring season.

The very high intake of calcium depends on the consumption of milk, as well as of bread (and flour) fortified with the mineral ; the higher consumption of both these foods in the autumn season accounts for the differences seen in the various family groups in table 7. In none of the areas visited was the possible intake of calcium in water considered to be significant.

The high intake of vitamin B_1, iron and niacin are attributable to the consumption of bread and flour of high extraction (90 per cent in the autumn, 85 per cent in the spring survey).

The intake of riboflavin—derived mainly from dairy produce and from eggs—remained satisfactory even in the spring season when consumption as a whole was reduced, though that of eggs was actually increased.

Meals Tables.

Table 8 shows the percentage frequency of simple meals of the " bread and spread " variety and of cooked meals. Certain types of meal are not included in this table at all (cereals, cake, etc.) ; the combined percentages of the two types of meal dealt with do not purport to be exhaustive and in any particular case therefore need not reach 100.

It is seen that in the autumn survey, more than half the total meals, in nearly every case, were of the simple " bread and spread " type, and that neither the age of the person nor the size of the family influenced the incidence to any extent. Cooked meals at this survey were taken by something over a third of the persons studied, and again neither the age of the person nor the size of the family influenced this figure. Broadly, the same trend can be seen in the frequency of consumption by persons of all ages of "bread and spread" meals, and the same is true of the cooked meals except that in large families, the younger people have less cooked meals than persons over 14 years.

In the spring survey, the frequency of incidence of " bread and spread " meals was less than in autumn in all cases, and on the whole sample amounted to about 40 per cent of all meals. Cooked meals, on the other hand, were somewhat more frequent than in autumn and again amounted to about 40 per cent of all meals. Again neither the age of the person nor the size of the family affected this incidence much. The increased incidence of " bread and spread " meals in autumn is consistent with the suggestion already put forward that the autumn figures reflected an increased amount of outdoor work (farming, fishing, etc.) at that season ; the food eaten out of doors at such work would normally consist of tea and bread and butter.

The monotony of diets where more than half the total meals for the week are of the simple uncooked " bread and spread " kind is very marked, and even where this proportion reaches only 40 per cent, the diet must be regarded as monotonous.

Table 9 gives the result of an analysis designed to show the type of meal commonly eaten by the various families at breakfast, dinner, tea and supper. In this table the sample has been broken up according to size of the family ; the percentages when analysed in relation to the various age groups of the sample showed no significant differences between the groups, and these figures have not therefore been reproduced.

Breakfast—The most frequent breakfast eaten at both seasons was the simple " bread and spread " meal ; next in frequency was a meal of cooked protein with or without vegetables (*e.g.*, potatoes). Whereas in autumn, the simple meal for the whole sample was taken by 62 per cent and the cooked protein breakfast (consisting of say an egg, with tea and bread and butter) by 30 per cent, in the spring survey these figures had become 48 per cent and 40 per cent respectively. It is probable that this was dependent on the freer supply of eggs in the spring.

Dinner—The commonest dinner taken in the autumn was one of cooked protein (say meat, fish or egg) with or without vegetables ; this type of dinner was eaten by 35 per cent of the families. A dinner of potatoes and milk or butter with or without bread taken by 29 per cent was nearly as frequent. A meal of cooked protein with or without vegetables, and with either bread and butter or pudding was taken by 23 per cent of the families. In the spring, the first type mentioned above was taken by 49 per cent of the families, with the next two types at 23 per cent and 16 per cent, respectively.

Tea—Much the most frequent type of tea at both seasons was a simple meal of probably tea and bread and butter. This meal was taken by 78 per cent of the autumn sample and by 69 per cent in the spring. The only other kind of tea meal encountered at all frequently was the cooked protein (probably egg or fish), taken by 12 per cent of the families in the autumn and by 17 per cent in the spring.

Supper—Much the commonest kind of supper eaten was the simple type—probably consisting of tea with bread and butter or a milk drink. The frequency of this supper was 59 per cent in autumn and 40 per cent in spring. Cereals (for instance, porridge) were taken by 22 per cent of the families at both seasons.

Housing.

Certain information relating to housing conditions was collected by the investigators and has been summarised in table 10. The degree of congestion suggested by the number of rooms per family and the number of persons per room is shown to be high only in families where the household consists of more than 7 persons. The standard corresponds quite closely with that of the Dublin survey already published.

SUMMARY.

1. A survey was made in the autumn of 1946 and again in the spring of 1947 of the food consumption of 200 families living in the congested districts of the Western seaboard. The number of persons studied was 907 in the autumn and 934 in the spring. All the families were poor.

2. The consumption of milk in all its forms was high at 10.6 pints per diet-head per week in the autumn, and 5.5 pints in the spring. The consumption of meat was 17.2 oz. in the autumn, and fell by about a quarter in the spring ; consumption of fish of all kinds stood at about half a pound weekly in the autumn and a little over 6 oz. in the spring. Consumption of bread and flour was very high in autumn and fell by about 43 per cent. in spring ; this is considered to depend on the much greater amount of outdoor physical work done in the autumn. The consumption of potatoes was the same at both periods of survey, standing at the high figure of 13 lb. per diet-head weekly. Vegetables (mostly cabbage) were taken only to the extent of about 1¼ lb. per diet-head weekly in the autumn and fell by about two thirds in spring. Fruit consumption, already low in the autumn, fell by about half in the spring. Consumption of cheese, an invaluable foodstuff, was practically negligible throughout.

3. In the autumn survey, the intake of the various nutrients and of calories was sufficient in every case, except that the supply of vitamin A was slightly below requirements where the family was large.

In the spring survey, the intake of calories was just sufficient in nearly all the families : in families of over 7 persons the calcium need was barely met. But the outstanding deficiency in the spring season was in vitamin A, where the highest intake amongst the various family groups reached only 59 per cent of the calculated requirement, and where families of more than 7 persons received only 41 per cent of their requirement ; the intake of the whole 200 families taken together was only 50 per cent of the requirement.

4. A high proportion of the total meals eaten consisted of simple meals of the tea and bread and butter type. When from 40 per

cent (in spring) to 50 per cent (in autumn) of total meals were of this kind, the monotony of the dietaries must have been marked.

5. The main defects of the diets as a whole were monotony, and deficient intakes of vegetables and fruit.

6. The housing conditions of the families as regards overcrowding and congestion were found to be reasonable except where the family exceeded 7 persons in number. In these respects, also, the results of the study bore a remarkable resemblance to the figures already published relating to the Dublin survey taken as a whole.

TABLE 1.—AVERAGE COMPOSITION OF 200 FAMILIES IN THE CONGESTED DISTRICTS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Family composition	Season	Number of Persons in Family				
		1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	All sizes of family
Total number of families ..	Autumn ..	31	80	66	23	200
	Spring ..	30	77	68	25	200
Total number of persons ..	Autumn ..	62	274	374	197	907
	Spring ..	58	268	395	213	934
Total number of diet-heads ..	Autumn ..	63.6	279.4	375.1	196.0	914.1
	Spring ..	58.1	263.6	396.6	207.0	925.3
Children 0–14 per family ..	Autumn ..	0.0	0.3	2.0	4.3	1.3
	Spring ..	—	0.3	2.0	4.6	1.4
Children 15–16 per family ..	Autumn ..	0.0	0.1	0.2	0.2	0.1
	Spring ..	0.0	0.1	0.1	0.2	0.1
Other persons per family ..	Autumn ..	2.0	3.0	3.5	4.1	3.1
	Spring ..	1.9	3.1	3.7	3.7	3.2
Total persons per family ..	Autumn ..	2.0	3.4	5.7	8.6	4.5
	Spring ..	1.9	3.5	5.8	8.5	4.7
Percentage distribution of families	Autumn ..	15.5	40.0	33.0	11.5	100
	Spring ..	15.0	38.5	34.0	12.5	100

TABLE 2.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 200 FAMILIES IN THE CONGESTED DISTRICTS CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Commodity Group	Unit of Quantity	Season	Number of Persons in Family														
			1 or 2 persons			3 or 4 persons			5, 6 or 7 persons			8, 9, 10 or 11 persons			All sizes of family		
			Bought and Free	Home Won	Total	Bought and Free	Home Won	Total	Bought and Free	Home Won	Total	Bought and Free	Home Won	Total	Bought and Free	Home Won	Total
Milk (*a*) . .	Pints	Autumn	0.9	12.1	13.0	0.2	12.3	12.5	0.5	9.2	9.7	0.5	8.3	8.8	0.4	10.2	10.6
		Spring	0.9	5.7	6.6	0.4	6.0	6.4	1.1	4.4	5.5	0.6	3.5	4.1	0.8	4.7	5.5
Eggs . .	Number	Autumn	0.1	3.3	3.4	0.2	4.1	4.3	0.2	2.3	2.5	—	2.7	2.7	0.2	3.1	3.3
		Spring	0.0	5.5	5.5	0.2	5.6	5.8	0.0	5.1	5.1	0.3	4.4	4.7	0.1	5.1	5.2
Cheese . .	Oz.	Autumn	0.6	—	0.6	0.7	—	0.7	0.3	—	0.3	0.8	—	0.8	0.6	—	0.6
		Spring	—	—	—	0.2	—	0.2	0.2	—	0.2	0.6	—	0.6	0.3	—	0.3
Fats (*b*) . .	,,	Autumn	5.5	5.4	10.9	4.6	7.0	11.6	5.8	3.8	9.6	4.6	4.9	9.5	5.2	5.1	10.3
		Spring	3.8	0.8	4.6	3.4	2.9	6.3	4.4	0.8	5.2	4.4	0.7	5.1	4.1	1.4	5.5
Meat (*c*) . .	,,	Autumn	13.9	1.0	14.9	12.0	5.8	17.8	15.3	2.4	17.7	13.6	2.3	15.9	13.8	3.4	17.2
		Spring	8.8	0.8	9.6	10.9	3.9	14.8	9.7	2.4	12.1	12.3	2.3	14.6	10.6	2.7	13.3
Fish . .	,,	Autumn	9.3	—	9.3	9.5	0.6	10.1	7.3	0.8	8.1	5.8	1.4	7.2	7.8	0.8	8.6
		Spring	5.5	7.8	13.3	5.1	2.2	7.3	4.1	1.5	5.6	5.3	0.6	5.9	4.7	1.9	6.6

Flour and Bread (*d*)	,,	Autumn	188.7	1.4	190.1	153.0	2.7	155.7	133.9	1.2	135.1	132.0	0.4	132.4	143.1	1.5	144.6
		Spring	85.2	0.1	85.3	85.0	0.1	85.1	81.9	0.9	82.8	79.5	1.8	81.3	82.4	0.8	83.2
Other Cereals	,,	Autumn	14.3	—	14.3	11.0	0.2	11.2	7.4	—	7.4	6.9	—	6.9	9.0	0.1	9.1
		Spring	25.6	—	25.6	24.4	—	24.4	12.6	—	12.6	8.4	—	8.4	15.8	—	15.8
Potatoes ..	,,	Autumn	15.0	206.7	221.7	0.4	199.8	200.2	2.5	211.9	214.4	8.0	203.6	211.6	3.9	206.0	209.9
		Spring	39.6	196.9	236.5	33.6	205.4	239.0	39.3	172.1	211.4	32.6	131.4	164.0	36.2	174.0	210.2
Vegetables ..	,,	Autumn	2.3	12.5	14.8	0.8	19.7	20.5	0.6	22.5	23.1	0.7	16.9	17.6	0.8	19.7	20.5
		Spring	2.8	4.2	7.0	2.1	8.1	10.2	2.2	3.8	6.0	2.7	1.8	4.5	2.3	4.6	6.9
Fruit and Fruit Products ..	,,	Autumn	0.7	0.7	1.4	2.6	1.4	4.0	2.2	1.3	3.5	3.1	0.1	3.2	2.4	1.0	3.4
		Spring	1.3	—	1.3	0.7	—	0.7	0.4	0.2	0.6	0.9	0.5	1.4	0.6	0.2	0.8
Sugar ..	,,	Autumn	13.6	—	13.6	11.9	—	11.9	11.4	—	11.4	11.3	—	11.3	11.7	—	11.7
		Spring	7.8	—	7.8	7.6	—	7.6	7.4	—	7.4	7.6	—	7.6	7.5	—	7.5
Preserves ..	,,	Autumn	2.0	—	2.0	3.6	0.3	3.9	3.1	—	3.1	2.5	0.1	2.6	3.1	0.1	3.2
		Spring	1.1	—	1.1	1.6	0.1	1.7	1.4	—	1.4	2.1	—	2.1	1.6	0.0	1.6
Miscellaneous (*e*)	,,	Autumn	1.0	—	1.0	1.9	0.1	2.0	0.9	0.0	0.9	0.9	0.0	0.9	1.2	0.0	1.2
		Spring	0.2	—	0.2	0.5	—	0.5	0.4	—	0.4	0.5	0.4	0.9	0.4	0.1	0.5

(*a*) All forms stated as Liquid Milk.

(*b*) Including Butter, Margarine, Suet, Lard, etc.

(*c*) Including Beef, Mutton, Pork, Bacon, Poultry and Offals.

(*d*) Expressed as Flour.

(*e*) Items such as Cocoa, Sauces, Patent Drinks and Foods, etc.

TABLE 3.—AVERAGE WEEKLY CONSUMPTION OF FOODS PER DIET-HEAD IN 200 FAMILIES IN THE CONGESTED DISTRICTS.

COMMODITY	Unit of Quantity	BOUGHT AND FREE		HOME WON		TOTAL	
		Autumn	Spring	Autumn	Spring	Autumn	Spring
Butter	Oz.	4.8	2.3	5.1	1.4	9.9	3.7
Margarine	,,	—	1.5	—	—	—	1.5
Other Fats	,,	0.4	0.3	—	—	0.4	0.3
Sugar	,,	11.7	7.5	—	—	11.7	7.5
Preserves	,,	3.1	1.6	0.1	0.0	3.2	1.6
Milk liquid, Milk whole condensed and Milk whole dried	Pints	0.2	0.4	4.5	3.4	4.7	3.8
Skimmed milk and buttermilk and skimmed condensed milk	,,	0.2	0.3	5.7	1.3	5.9	1.6
Eggs	Number	0.2	0.1	3.1	5.1	3.3	5.2
Cheese	Oz.	0.6	0.3	—	—	0.6	0.3
Beef and Veal	,,	3.0	4.6	—	—	3.0	4.6
Mutton and Lamb	,,	6.1	1.9	0.2	—	6.3	1.9
Pork	,,	0.1	0.1	0.1	0.5	0.2	0.6
Corned Beef, Mutton, and Pork	,,	1.0	0.4	0.0	—	1.0	0.4
Bacon	,,	2.0	1.7	0.2	0.9	2.2	2.6
Liver, Sheep	,,	0.1	—	—	—	0.1	—
,, Other	,,	0.1	—	0.0	—	0.1	—
Other offals	,,	0.3	0.3	3.1	1.3	3.4	1.6
Cooked and canned meat	,,	0.0	0.2	—	—	0.0	0.2
Sausages (uncooked)	,,	0.9	1.2	—	—	0.9	1.2
Other meat products	,,	0.2	0.2	—	0.0	0.2	0.2
White fish	,,	0.9	0.6	0.3	—	1.2	0.6
,, ,, (processed)	,,	0.2	0.5	—	—	0.2	0.5

Fat fish (fresh)	,,	5.1	1.7	0.1	0.4	5.2	2.1
,, ,, (processed)	,,	1.6	1.5	0.3	0.3	1.9	1.8
Fish (in shell)	,,	—	0.5	0.1	1.2	0.1	1.7
Potatoes and Chips	,,	3.9	36.2	206.0	174.0	209.9	210.2
Carrots	,,	0.1	0.1	1.7	0.3	1.8	0.4
Other roots	,,	0.1	0.3	3.3	1.7	3.4	2.0
Green vegetables	,,	0.1	0.0	11.7	1.8	11.8	1.8
Miscellaneous vegetables	,,	0.5	1.8	3.0	0.8	3.5	2.6
Legumes (fresh)	,,	—	—	0.1	—	0.1	—
Pulses (dried)	,,	0.0	0.1	—	—	0.0	0.1
,, (canned)	,,	—	0.1	—	—	—	0.1
Tomatoes	,,	0.3	—	—	—	0.3	—
Citrus fruits	,,	0.6	0.2	—	—	0.6	0.2
Other fruit	,,	1.4	0.1	1.0	0.2	2.4	0.3
Dried vine fruit	,,	0.1	0.2	—	—	0.1	0.2
Other dried fruit	,,	0.0	0.1	—	—	0.0	0.1
Flour	,,	119.7	65.5	1.7	—	121.4	65.5
Wholemeal and Maize	,,	10.6	7.6	0.3	0.6	10.9	8.2
Bread	,,	14.6	12.2	1.8	0.3	16.4	12.5
Biscuits	,,	0.3	0.2	—	—	0.3	0.2
Cakes	,,	0.2	0.2	—	—	0.2	0.2
Oatmeal and oat products	,,	8.1	14.9	0.2	—	8.3	14.9
Breakfast cereals	,,	0.0	0.1	—	—	0.0	0.1
Cereals (rice and barley)	,,	0.1	0.1	—	—	0.1	0.1
,, (flour base)	,,	0.0	0.1	—	—	0.0	0.1
Other cereals	,,	0.2	0.2	—	—	0.2	0.2
Cocoa and cocoa-based drinks	,,	0.2	0.2	—	0.0	0.2	0.2
Patent drinks and foods	,,	0.0	0.1	—	—	0.0	0.1
Soups and extracts	,,	0.0	0.2	—	—	0.0	0.2

TABLE 4.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY OF FOODS IN 200 FAMILIES IN THE CONGESTED DISTRICTS CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Commodity Group	Season	Number of Persons in Family														
		1 or 2 persons			3 or 4 persons			5, 6 or 7 persons			8, 9, 10 or 11 persons			All sizes of family		
		Bought	Home Won	Total	Bought	Home Won	Total	Bought	Home Won	Total	Bought	Home Won	Total	Bought	Home Won	Total
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	Autumn	2	2 2	2 4	0	2 4	2 4	1	1 8	1 9	0	1 7	1 7	1	1 11	2 0
	Spring	2	1 5	1 7	1	1 5	1 6	2	1 1	1 3	2	10	1 0	1	1 2	1 3
Eggs	Autumn	0	10	10	1	1 0	1 1	1	7	8	—	9	9	0	10	10
	Spring	0	1 4	1 4	0	1 4	1 4	0	1 2	1 2	1	1 1	1 2	1	1 2	1 3
Cheese	Autumn	1	—	1	1	—	1	0	—	0	1	—	1	1	—	1
	Spring	—	—	—	0	—	0	0	—	0	1	—	1	1	—	1
Fats (*a*)	Autumn	9	10	1 7	8	1 0	1 8	9	7	1 4	8	8	1 4	8	9	1 5
	Spring	4	2	6	5	6	11	7	1	8	7	1	8	6	3	9
Meats (*b*)	Autumn	1 2	1	1 3	1 3	7	1 10	1 6	3	1 9	1 4	2	1 6	1 4	4	1 8
	Spring	1 0	1	1 1	1 3	7	1 10	1 1	4	1 5	1 6	4	1 10	1 3	5	1 8

Fish	Autumn	3	—	3	4	0	4	3	0	3	2	1	3	3	1	4
	Spring	3	0	3	3	0	3	3	1	4	3	0	3	3	1	4
Flour and Bread ..	Autumn	3 3	1	3 4	2 7	1	2 8	2 3	0	2 3	2 3	0	2 3	2 5	0	2 5
	Spring	1 8	0	1 8	1 7	0	1 7	1 6	0	1 6	1 5	0	1 5	1 6	1	1 7
Other Cereals ..	Autumn	5	—	5	4	0	4	3	—	3	4	—	4	4	0	4
	Spring	10	—	10	9	—	9	5	—	5	4	—	4	6	—	6
Potatoes, including Chips ..	Autumn	2	1 3	1 5	0	1 4	1 4	0	1 5	1 5	1	1 4	1 5	0	1 5	1 5
	Spring	4	1 4	1 8	3	1 6	1 9	3	1 1	1 4	3	1 0	1 3	3	1 2	1 5
Vegetables ..	Autumn	0	2	2	0	4	4	0	3	3	0	3	3	0	3	3
	Spring	1	1	2	1	2	3	1	1	2	1	0	1	1	1	2
Fruit and Fruit Products	Autumn	1	0	1	2	0	2	2	0	2	2	0	2	2	0	2
	Spring	1	—	1	0	—	0	0	0	0	1	0	1	1	0	1
Sugar	Autumn	4	—	4	4	—	4	4	—	4	4	—	4	4	—	4
	Spring	3	—	3	2	—	2	3	—	3	3	—	3	3	—	3
Preserves ..	Autumn	2	—	2	3	0	3	3	—	3	2	0	2	3	0	3
	Spring	1	—	1	1	0	1	1	—	1	2	—	2	1	0	1
Miscellaneous (*c*) ..	Autumn	8	—	8	6	0	6	5	0	5	5	0	5	6	0	6
	Spring	6	—	6	6	—	6	5	—	5	5	0	5	6	0	6
Total ..	Autumn	7 6	5 5	12 11	6 7	6 8	13 3	6 4	4 9	11 1	6 0	4 10	10 10	6 5	5 7	12 0
,, ..	Spring	5 7	4 5	10 0	5 5	5 6	10 11	5 1	3 11	9 0	5 8	3 4	9 0	5 6	4 5	9 11

(*a*) Including Butter, Margarine, Suet, Lard, etc.

(*b*) Including Beef, Mutton, Pork, Bacon, Poultry and Offals.

(*c*) Items such as Tea, Cocoa, Coffee, Sauces, Patent Drinks, and foods, etc.

TABLE 5.—RECOMMENDED DAILY REQUIREMENTS OF NUTRIENTS PER HEAD (LEAGUE OF NATIONS TECHNICAL COMMISSION).

Age in Years	Under 1 year	1–3 years	4–7 years	8–12 years	13–15 years	16–17 years	18–21 years	Males			Females		
								Sedentary work	Medium work	Heavy work	Sedentary work	Medium work	Pregnant or Lactating
Calories	800	1,100	1,500	2,100	2,900	3,000	3,000	2,500	3,000	4,500	2,500	3,000	3,000
Protein gms. ..	20	42	50	65	95	100	90	70	70	70	60	60	80
Calcium gms. ..	0.4	1.1	1.3	1.4	1.5	1.4	1.1	0.8	0.8	0.8	0.8	0.8	1.5
Iron mgms. ..	3.0	5.0	8.0	13.0	16.0	15.0	13.0	10.0	10.0	10.0	10.0	10.0	13.0
Vitamin A i.u. ..	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	5,000
Vitamin B_1 μgms.	360	495	675	945	1,305	900	900	900	900	900	750	750	1,800
[1]Riboflavin mgms. ..	0.6	0.9	1.1	1.6	2.1	2.3	2.4	1.9	1.9	1.9	1.5	1.5	3.0
[1]Niacin mgms. ..	4	6	7	11	14	16	16	13	13	13	11	11	23
[2]Vitamin C i.u. ..	600	600	600	600	600	600	600	600	600	600	600	600	900

[1] Recommendations in respect of riboflavin and niacin taken from National Research Council's (U.S.A.) scale.

[2] 20 i.u. vitamin C=1 mgm.

TABLE 6.—DAILY INTAKE OF NUTRIENTS PER DIET-HEAD OF 200 FAMILIES IN THE CONGESTED DISTRICTS CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Number in Family	Season	Animal Protein gms.	Vegetable Protein gms.	Total Protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.*
1–2	Autumn	52	121	173	100	810	4,833	2,890	34.6	3,076	177	3,253	3,740	5.0	34	2,927
	Spring	32	68	100	66	520	3,074	1,429	22.4	1,398	156	1,554	2,480	3.1	19	879
3–4	Autumn	53	102	155	98	692	4,271	2,662	30.5	3,412	633	4,045	3,228	4.3	31	2,704
	Spring	33	68	101	74	517	3,138	1,456	22.1	1,654	128	1,782	2,510	3.0	18	899
5–7	Autumn	42	91	133	82	621	3,756	2,150	26.8	2,584	503	3,087	2,913	3.7	28	2,816
	Spring	28	59	87	60	455	2,708	1,281	18.1	1,322	106	1,428	2,146	2.6	16	754
8–11	Autumn	36	89	125	75	597	3,564	1,957	26.2	2,349	454	2,803	2,705	3.2	27	2,655
	Spring	26	53	79	57	411	2,473	1,133	16.5	1,203	62	1,265	1,853	2.0	15	584
All sizes of family	Autumn	45	96	141	87	651	3,948	2,316	28.4	2,820	509	3,329	3,022	3.9	29	2,754
	Spring	29	61	90	64	467	2,801	1,307	19.2	1,395	106	1,501	2,205	2.6	17	765

* 20 i.u. Vitamin C = 1 mgm.

TABLE 7.—DAILY NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 200 FAMILIES IN THE CONGESTED DISTRICTS CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Number in family	Season	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1.	Riboflavin	Niacin	Vitamin C
1–2	Autumn	266	157	348	343	107	450	293	280	484
	Spring	151	101	174	224	48	301	181	153	146
3–4	Autumn	233	142	303	298	134	380	246	254	447
	Spring	150	103	165	216	59	295	171	151	149
5–7	Autumn	205	146	213	262	102	348	222	244	466
	Spring	132	105	126	175	47	256	158	142	125
8–11	Autumn	196	151	176	251	92	319	202	244	437
	Spring	120	107	102	161	41	222	135	134	96
All sizes of family	Autumn	216	146	236	276	110	358	230	251	455
	Spring	136	105	132	187	50	263	160	144	127

TABLE 8.—PERCENTAGE OF TOTAL MEALS EATEN AS "BREAD AND SPREAD" AND AS "COOKED" MEALS BY PERSONS OF VARIOUS AGE-GROUPS IN FAMILIES IN THE CONGESTED DISTRICTS CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Number in family	Season	Age 3–14 Years		Age 15–19 Years		Age over 20 Years	
		Bread and Spread	Cooked	Bread and Spread	Cooked	Bread and Spread	Cooked
1 or 2 persons . .	Autumn	(*a*)	(*a*)	(*a*)	(*a*)	55	30
	Spring	(*a*)	(*a*)	(*a*)	(*a*)	43	35
3 or 4 persons . .	Autumn	54	34	54	39	50	37
	Spring	36	41	39	40	42	38
5, 6, or 7 persons . .	Autumn	51	33	55	32	54	32
	Spring	42	38	41	41	41	39
8, 9, 10 or 11 persons . .	Autumn	53	31	52	40	49	41
	Spring	33	39	44	44	42	42
All sizes of family . .	Autumn	52	33	54	36	52	35
	Spring	38	39	41	41	42	39

" Bread and Spread " meals mean Tea, etc., with bread and butter, margarine, jam or other spread.

" Cooked " meals mean eggs, bacon, sausages, cooked meat (hot or cold) or vegetables.

(*a*) Insufficient numbers of meals to give trustworthy results.

TABLE 9.—PERCENTAGE FREQUENCY OF VARIOUS KINDS OF MEALS ACCORDING TO NUMBER

TYPE OF MEAL	Season	NO. OF PERSONS IN FAMILY				
		1–2	3–4	5–7	8–11	Total
BREAKFASTS						
No meal	Autumn	—	—	—	—	—
	Spring	—	—	—	1	0
Milk Drink, or Bread and Spread with(out) Drink.	Autumn	72	58	65	57	62
	Spring	67	50	44	46	48
Cereals with(out) Bread and Spread ..	Autumn	2	4	7	3	5
	Spring	1	5	8	7	7
Cereals with Cooked Protein ..	Autumn	—	6	2	3	3
	Spring	—	4	5	4	4
Cooked Protein without Vegetables ..	Autumn	26	32	26	37	30
	Spring	29	40	43	41	40
Other Breakfasts	Autumn	0	0	0	—	0
	Spring	3	1	0	1	1
All Breakfasts	Autumn	100	100	100	100	100
	Spring	100	100	100	100	100
DINNERS						
No meal	Autumn	—	—	—	—	—
	Spring	—	0	—	1	0
Milk Drink, or Bread and Spread with(out) Drink.	Autumn	22	11	13	4	11
	Spring	15	10	11	10	11
Potato and Milk or Butter with (out) Bread and Spread.	Autumn	31	32	26	29	29
	Spring	21	26	25	17	23
Cooked Protein with(out) Vegetables ..	Autumn	31	34	34	39	35
	Spring	53	47	48	51	49
Cooked Protein with Vegètables and Bread and Spread or Pudding.	Autumn	12	21	25	26	23
	Spring	9	16	15	20	16
Other Dinners	Autumn	4	2	2	2	2
	Spring	2	1	1	1	1
All Dinners	Autumn	100	100	100	100	100
	Spring	100	100	100	100	100

EATEN IN 200 FAMILIES IN THE CONGESTED DISTRICTS CLASSIFIED OF PERSONS IN FAMILY.

Type of Meal	Season	No. of Persons in Family				
		1–2	3–4	5–7	8–11	Total
Teas						
No meal	Autumn	1	2	—	—	1
	Spring	7	5	9	9	8
Milk Drink, or Bread and Spread with(out) Drink.	Autumn	79	75	80	75	78
	Spring	63	70	71	64	69
Cereals with(out) Bread and Spread . .	Autumn	0	1	0	—	0
	Spring	4	1	1	—	1
Potato and Milk or Butter with(out) Bread and Spread.	Autumn	6	4	5	1	4
	Spring	9	3	2	5	3
Cooked Protein with(out) Vegetables . .	Autumn	13	14	10	13	12
	Spring	15	18	14	20	17
Cooked Protein with Vegetables and Bread and Spread or Pudding.	Autumn	0	1	1	3	1
	Spring	—	0	0	—	0
Other Teas	Autumn	1	3	4	8	4
	Spring	2	3	3	2	2
All Teas	Autumn	100	100	100	100	100
	Spring	100	100	100	100	100
Suppers						
No meal	Autumn	16	7	9	7	8
	Spring	15	13	9	13	12
Milk Drink, or Bread and Spread with(out) Drink.	Autumn	52	59	55	69	59
	Spring	31	36	40	48	40
Cereals with(out) Bread and Spread . .	Autumn	23	23	25	15	22
	Spring	32	28	21	14	22
Cooked Protein with(out) Vegetables . .	Autumn	1	2	2	2	2
	Spring	0	1	5	6	3
Other Suppers	Autumn	8	9	9	7	9
	Spring	22	22	25	19	23
All Suppers	Autumn	100	100	100	100	100
	Spring	100	100	100	100	100

TABLE 10.—AVERAGE NUMBER OF ROOMS PER FAMILY, AND PERSONS PER ROOM IN THE CONGESTED DISTRICTS CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

	Season	Number of Persons in Family				
		1 or 2 persons	3or 4 persons	5, 6, or 7 persons	8, 9, 10 or 11 persons	All sizes of family
Number of families	Autumn	31	80	66	23	200
	Spring	30	77	68	25	200
Number of persons	Autumn	62	274	374	197	907
	Spring	58	268	395	213	934
Number of rooms	Autumn	81	265	226	86	658
	Spring	81	239	232	89	641
Number of rooms per family ..	Autumn	2.6	3.3	3.4	3.7	3.3
	Spring	2.7	3.1	3.4	3.6	3.2
Number of persons per room ..	Autumn	0.8	1.0	1.7	2.3	1.4
	Spring	0.7	1.1	1.7	2.4	1.4

NATIONAL NUTRITION SURVEY

Part III

DIETARY SURVEY
OF
LARGE and SMALL TOWNS

DUBLIN:
PUBLISHED BY THE STATIONERY OFFICE

To be purchased directly from the
GOVERNMENT PUBLICATIONS SALE OFFICE
3–4 COLLEGE STREET, DUBLIN
or through any Bookseller

(P. No. 9676) **Price 1/6**

(764).H5462.Wt.2926/1435.3.3.1000.2/50.W.P.W.Ltd.2,

FOREWORD

THE present report is the third of the series in which it is hoped to present the complete results of the National Nutrition Survey. The first report dealt with the dietary investigation carried out in Dublin City, and included a full account of the history and extent of the whole survey, together with details of such technical points as sampling and methods of calculation. In the second report published later and dealing with the dietary survey carried out in the "Congested Districts," the detailed descriptions already given in the Dublin report were not repeated, except insofar as was necessary to allow of the correct interpretation of the accompanying tables, or where modifications of the methods originally described had been introduced to deal with special circumstances.

The present report deals with the dietary surveys in large and small towns throughout the country, and again only enough descriptive matter has been included to permit the figures to be correctly interpreted, and to explain such modifications of the original technique as were found to be necessary in the course of the surveys.

An Roinn Sláinte,
Deireadh Fómháir, 1949.

NATIONAL NUTRITION SURVEY

DIETARY SURVEY—LARGE AND SMALL TOWNS.

Scope of Survey.

The figures presented in the tables which follow in this report represent the results of a survey made from mid-October, 1946, to May, 1947, of 329 families living in towns whose population was 10,000 or over, but of course excluding Dublin, and from May, 1947, to September, 1948, of 516 families living in towns whose population was under 10,000. The distinction as to size of town was made because it was felt that in smaller towns the dietary habits would more likely follow a rural pattern, whereas in the larger towns the population lived rather according to a city pattern. The survey was carried out in 13 large towns having a total population in 1946 of 312,594, and in 49 small towns with a total 1946 population of 149,636.

The 13 large towns comprised all those in the country (excluding Dublin) whose population in 1936 reached 10,000 or more, together with one town whose 1936 population fell just short of that figure; the 49 small towns were selected on a random basis throughout the country. Every county was visited, and the number of families surveyed was related to the total town population of the county. Finally, the total numbers of families surveyed in large and small towns respectively were arranged so as to be proportionate to the total " large " and " small " town populations in the country. A list of the towns visited, with their 1946 populations, appears on page 57; it shows that by 1946 the population of a second " large " town had fallen slightly below 10,000.

It was decided to exclude from the survey any household belonging to the professional classes—such as that of a solicitor or clergyman—the intention being to bias the representation slightly towards the less wealthy sections of the community.

In point of fact, the results did not disclose any marked or consistent differences in the figures relating to the two types of town investigated, and consequently all the towns are grouped together for purposes of remarking on the figures.

Method.

The methods of survey used were the same as those already described in the Dublin report, and where bulk stores were in question, as in the case, say, of potatoes, flour, etc., the device of estimating consumption in terms of the number of some homely measures used—e.g., potfuls of potatoes—was adopted.

The details of the actual technique used were fully described in the report on the Dublin survey, and the paragraphs of that report dealing with waste, " diet-heads," calculation of nutrients in the diet, calculation of nutrient requirements, and nutritional adequacy of the diets apply precisely to the present report also. The standards of requirements taken were the same as in the previous reports and, for convenience, are reproduced here as table 5.

In towns generally, whether large or small, it was found that the amounts of various foods home-grown or home-produced, did not seem significant, and so a division of the families according to their expenditure on food is included with some confidence, the relatively small quantities of home-won food being costed at current local retail prices. This is in contradistinction to the rural areas, where a large proportion of the food eaten is home-produced and where consequently it would be artificial to introduce a classification of the families concerned according to expenditure on food, such expenditure being merely an estimate of the cost of such foods if they had to be bought locally at retail prices.

The data collected by the investigators enabled the families surveyed to be classified under three heads, viz., according to (1) income, (2) food expenditure and (3) the number of persons in the family.

Again as in the populations covered by the two reports published previously, the attempt to estimate the income of households included in the survey was not a success, and the analysis of the incomes returned made it clear that the figures were not very accurate—usually the income was understated. Consequently in all the tables which follow, when the classification of the families is according to income, the figures are presented with some reserve, although probably the *trends* as between the different income groups are sound enough.

Where the classification is according to expenditure on food, however, the figures may be regarded as accurate, having been arrived at by systematic costing locally (by the investigators) of all foods bought.

The classification according to family size represents the result of plain statements of easily ascertainable fact.

Rationed Foods.

Certain foods were rationed during the periods of survey. Sugar was rationed at amounts varying from 4 oz. (for one short period in 1946) to 12 oz. per person weekly during the survey of large towns, and the ration stood at 12 oz. practically throughout the period of survey of small towns—for about one month early in this period it was 8 oz.

The ration of butter varied between 2 and 6 oz. per person weekly during the large towns survey, and between 4 and 6 oz. at the time of the small towns survey. Margarine was rationed at 2 oz. per person weekly throughout both periods, except for a month or so towards the end of the large towns survey, during which the ration was 4 oz.

The rationing of bread and flour was introduced during January, 1947, that is when about half of the large town families had been surveyed, but before the small towns had been visited. The amounts fixed were 6 lb. per head per week of bread, or 4½ lb. of flour. There were certain extra rations allowed also in a few limited classes, but these were unimportant in towns.

Flour Extraction.

The rate of extraction of flour was 90 per cent. up to January, 1947 (i.e., during less than half of the large towns survey) ; in that month the rate was reduced to 85 per cent., where it has remained since. The flour carried a variable addition of acid calcium phosphate throughout both periods. For the purpose of the subsequent calculations, it was assumed that this fortification was maintained at the average level of 14 oz. per 280 lb. sack.

Reliability of Results.

In each of the two sections of the survey which have been already published, it was possible to some extent to check the survey figures against known statistics from other sources, and in both cases, the check showed that the survey figures were dependable, and gave a true picture of the situation which the survey purported to depict.

In the case of the large and small town populations, unfortunately, such statistics from other sources were not available, and it was therefore impossible to check the accuracy of the survey figures in this way. A comparison of the amounts of certain rationed foodstuffs found to have been consumed during the time of the survey, however, with the amounts of the rations, is of some assistance in estimating the reliability of the figures found in the survey.

During the period of between seven and eight months occupied by the bulk of the survey in large towns, the weekly ration of sugar stood at 8 oz. per head for five and a half months, at 12 oz. for just over one month, and at 4 oz. for just under one month ; on average for the whole period, the ration was about 8.3 oz. Actually a few families in one large town continued to be surveyed for some months after May, 1947 (i.e., when the sugar ration became fixed at 12 oz.), and when these are taken into consideration the average ration covering the whole period was 8.8 oz. The survey figure found in large towns was 9.0 oz. From the time the survey of small towns began at the end of April, 1947, until the end of the survey in September, 1948, the amount of the sugar ration was 12 oz. per head weekly, except for one month in the early part of the period when it was 8 oz., and the consumption figure for the small town survey was found to be 11.6 oz.

It was not found possible to check accurately the survey figures for the consumptions of flour and of butter against the official rations. This may in part be due to the fact that in the case of these two foods, the public generally found means to supplement the official rations to an extent which was not practicable in the case of sugar.

Finally, the trends of the consumption figures for all foods, as between the various groups into which the families have been divided in the various tables, follow a steady and consistent course, which of itself suggests reliability.

In general, it is suggested that from these considerations it may be fairly concluded that the figures now published are substantially accurate.

Tables.

The results of the survey are set out in the tables which follow. Tables 1 to 10 inclusive refer to large towns, and tables 11 to 19 inclusive to small towns. Table 5 is common to both groups. The tables may be grouped as follows :—

(1) Constitution of samples (Tables 1 and 11).

(2) Consumption of and expenditure on various foods (Tables 2, 3, 4, 12, 13 and 14).

(3) Intake of nutrients, and the percentage which this intake represents of standard nutrient requirements (Tables 6, 7, 15 and 16).

(4) Types of meals eaten (Tables 8, 9, 17 and 18).

(5) Housing conditions (Tables 10 and 19).

EXPLANATORY NOTES.

In the various tables, the symbol " — " is used to mean none, and " 0.0 " to mean an insignificant amount.

Composition Tables.

Tables 1A, 1B, and 1C show the composition by ages of the 329 families surveyed in large towns, when the families have been classified according to income, food expenditure and family size respectively. The average size of these families was 6.3 persons. Tables 11A, 11B and 11C give similar details of the 516 families surveyed in small towns according to the same classifications. In this case the average size of the family was 6.7 persons. It is of interest to recall that the corresponding tables of the Dublin report showed the average size of the 500 families surveyed there as 4.8 persons.

Consumption Tables.

Tables 2A, 2B and 2C show the average weekly consumption per diet-head of the large town families, classified as before, and tables 12A, 12B and 12C show corresponding figures for the small town families. The last column in each case gives the average weekly consumption per diet-head of all the families under review when taken together. Thus in the large towns the milk consumption was 4.4 pints per diet-head per week, and in the small towns 5.1 pints (the figure in Dublin was 4.8 pints). The weekly consumption of meat in large towns was 31.2 oz. per diet-head, and in the small towns 25.1 oz. (the Dublin figure was 33.3 oz.). Potatoes showed a rising consumption from 102.7 oz. per diet-head weekly in large towns to 111.2 oz. in small towns (the Dublin figure was 82.7 oz.). Apart from these three items, the two sets of tables do not differ markedly from each other or from the Dublin tables. Cheese consumption was low at 1.2 oz. per diet-head weekly in the large towns (the same figure as in Dublin), and amounted to only 0.8 oz. in the small towns. The consumption of vegetables and fruit were somewhat surprisingly lower in small than in large towns, and were lower in both groups than in Dublin.

When the different groups comprising each of the tables are considered, the effects of rising income and food expenditure and of increasing size of family are well shown. Thus tables 2A and 12A show very substantial increases in consumption (as income increases) of meat, fruit, eggs, vegetables and milk—all foodstuffs of great value. This trend is even more clearly discernible in tables 2B and 12B, where the families are classified according to the amounts spent on food. The rationing of butter and margarine during the time of the actual survey accounts for the absence of very wide divergences in the consumption of fats. Similar results are seen in tables 2C and 12C where the classification adopted is that according to the size of the family. Here, however, the limits of variation as between the various groups seem narrower—for example, the consumption of meat increased from the lowest to the highest value recorded only by about one-third, whereas in the other two tables the increase was at least a three-fold one. The explanation probably is that, in many cases where the family was large, more than one member was earning and subscribing to the family income.

Tables 3 and 13 show, for large and small towns respectively, the average weekly consumption per diet-head of the various foods given separately instead of in groups as in the tables just considered. It should be noted that the figures for consumption of bread and flour in tables 2 and 12, where the two foods are expressed together in terms of flour, do not agree with the figures in tables 4 and 14, where the two foods are dealt with separately. This is because in order to express bread as flour in the grouped tables, certain adjustments by way of reduction of the weight of bread had to be made, and so the figures in the two sets of tables are not strictly comparable. The field technique used did not permit of a record being kept of the consumption of such items as beer and sweets.

Expenditure Tables.

Tables 4 and 14 give the results of costing the amounts of the various foodstuffs shown in tables 2 and 12, and are again divided into classifications according to income, food expenditure and family size. Tables 4A and 14A, subject to the reservation expressed earlier as to the dependability of the figures, show a steadily rising expenditure on the various foods as income increases. Bread and sugar, as might be expected, are exceptions, and certain other foods, such as fats and potatoes, do not show the trend very markedly. As in previous reports, the proportion of income spent on food appears unduly high in the lowest income group, and as before, the probable explanation is that while the amount spent on food is approximately correct, the income has been understated.

The figures shown in tables 4B and 14B, as explained previously, are likely to be more accurate, and can be regarded with some confidence. The point of greatest interest here is the manner in which the housewife actually spends her money according as the amount available to her increases. Thus the steepness of the increase in expenditure groups on such important foods as eggs, fish, meat, fruit, vegetables and milk shows clearly the direction in which increased amounts available are actually expended.

The same trend, modified similarly as in table 2C, and for the same reason, is seen in table 4C, where the size of family is the governing factor.

A point of interest in tables 4 and 14 is the proportions of the total food expenditure spent on the various individual items of food. Thus in both groups of towns, the food responsible for much the highest proportion of the whole was meat ; expenditure on this item in large towns amounted to 28 per cent. of the total food expenditure, and in small towns to 27 per cent. Flour and bread in large towns accounted for 15 per cent. and in small towns for 13 per cent. Milk cost about 11 per cent. of the total expenditure in both large and small towns. It may be noted that the large town percentages coincide almost exactly with those already published for Dublin.

Intake and Requirement Tables.

The figures in tables 7 and 16 show the percentages of their calculated requirements of the various nutrients which each group received. First the actual intake was worked out (tables 6 and 15) for each group separately, and then the requirements of each group according to the standard taken (table 5) ; note that allowance is made, in calculating the requirements, for differences in age, sex and conditions of work within each group. The intake tables (6 and 15) are presented only in respect of the families classified according to food expenditure.

The income classification in tables 7A and 16A is presented merely to show general trends. In tables 7B and 16B, which give the percentages of requirements obtained when the classification is according to expenditure on food, calcium stands out as a nutrient whose intake was not completely satisfactory. In the lowest group on table 7B, where the expenditure on food was below 10/– per diet-head weekly, only 59 per cent. of the calculated requirement was obtained, and even where the expenditure was between 10/– and 15/–, the figure was still 12 per cent. short of a satisfactory intake. In small towns the position was somewhat better, presumably on account of their higher milk consumption as shown in table 12, and the percentages in the lowest two groups, shown in table 16B, reached 74 and 96 respectively.

Vitamin A intake in large towns amounted to only 55 per cent. of requirements in the lowest group, and to just 100 per cent. in the next. In small towns these percentages were 61 and 88 respectively. The principal sources of the nutrient in most diets are liver, dairy produce and eggs, as well as green vegetables and, in particular, carrots.

The intake of calories in both large and small towns fell short of estimated requirements in the lowest expenditure group, and the measure of the deficiency was fairly alike in both cases: the percentages were 88 and 93 in the two populations respectively. It follows that since these figures are averages, covering considerable numbers of people, there must have been in both groups several families whose intake of calories fell substantially short of their estimated requirements.

Both tables show high levels of intake of iron and of vitamin B_1, and these may be regarded as reflecting the relatively high consumption of bread made from high extraction flour and of meat.

The intake of riboflavin was satisfactory in all but the lowest expenditure group in both tables: in these groups the percentages obtained were 84 in the large towns and 94 in the small. The principal sources of riboflavin in the ordinary diet are eggs, milk and dairy produce generally, and meat, especially liver.

The niacin figures also reached satisfactory levels in both populations; this nutrient is derived mainly from meat and from high extraction bread.

The vitamin C figures were high in both large and small towns. This vitamin is derived principally from fruit and vegetables, including potatoes.

When all the families are considered together in both the large and small towns, the intake of all the nutrients appeared to meet with estimated requirements, except in the case of calcium, where the percentage was only 86 in large towns and 95 in small, and of vitamin A, where the figures were 96 and 93 respectively. It is important to note the low calorie intakes of the lowest economic group in both populations, which indicate that the dietaries of these groups were in this respect deficient according to the adopted standard.

Tables 7C and 16C, where the classification is by the number of persons in the family, show similar trends, though with lesser differences between the various groups than are seen in tables 7B and 16B.

Meals Tables.

Tables 8 and 17 present, for large and small towns respectively, the percentages of all meals eaten which consisted of simple meals of the " bread and spread " variety, compared with " cooked " meals. As certain types of meals (such as cereals) were not included in either group, the tables are not exhaustive, and the combined percentages of the two types of meal in any one group need not, and as a matter of fact do not total 100. The only classification used in preparing the table is that according to food expenditure. Each group of families is further divided into three age-groups, to bring out any differences between (*a*) children, (*b*) adolescents and (*c*) adults. But in fact such differences as there were between the three seem insignificant. As between the various expenditure groups, there was a steady decline (between two- and three-fold) in the frequency of the " bread and spread" meal, accompanied by a corresponding increase (about two-fold) in the frequency of the " cooked " meal as expenditure on food increased. When all the families are considered together, the two types of meal in large towns were equally frequent in children, while the cooked meal was slightly more frequent in adolescents and something more than 1½ times as frequent in adults. In the small towns the simpler meal was somewhat more frequent in children, slightly less frequent in adolescents, and again somewhat less frequent in adults.

In tables 9 and 18, an attempt has been made to show the prevailing food habits of the families surveyed, when classified according to expenditure on food. Each group so classified has been again subdivided according to age into the three age-groups indicated in the tables.

Apart from the fact that young children aged between 3 and 14 years tended to receive a cooked meal rather less frequently than older persons at breakfast, dinner and tea, and that no supper was also somewhat commoner at these younger ages, there did not appear to be any great difference between the various ages in the frequency with which the several types of meal were taken.

Breakfast: The commonest breakfast taken was of the simple " bread and spread " type, except in the case of adults in small towns, where the cooked protein meal (say egg or bacon, etc.) was slightly more common. Furthermore, the frequencies of the " bread and spread " type of breakfast and of the cooked protein meal varied inversely with the amounts spent on food ; thus there was a steady decline in the frequency of the simpler meal with increasing expenditure, and at the same time a consistent increase in the frequency of the more elaborate meal (least extensive in the youngest age-group).

Dinner: At dinner the two commonest types of meal were either the cooked protein meal (say fish, meat or egg) with or without vegetables, and the somewhat more elaborate meal of cooked protein with vegetables and with either bread and butter or a pudding. These two kinds of meal varied inversely with rising or declining expenditures on food. Indeed between them they accounted for much the highest percentage of dinners, and dinners of other types were insignificant by comparison. In the poorer families, however, a dinner of potatoes and milk or butter with " bread and spread " was relatively common (as high as 16 per cent. in the young age-groups in small towns) and even the simple drink and " bread and spread " meal was nearly as frequent. Both of these types of dinner were commoner in small than in large towns.

Tea : The commonest meal at tea was the simple " bread and spread " meal, probably consisting of tea with bread and butter or jam. In this case, the effect of increasing expenditure on food was marked, the simple type decreasing rapidly at all ages as expenditure increased, and being replaced with equal consistency by the cooked protein meal—probably eggs, bacon, sausages or some such foods. Other kinds of meals at tea were rare.

Supper : As might be expected, a high proportion of children under 14 years had no supper—nearly half in large towns. Indeed, no supper was taken by anything up to 20 per cent. of all persons over this age. The commonest supper everywhere was the simple meal of the " bread and spread " type. This description would cover such a meal as milk and biscuits, or tea and bread and butter.

Housing.

The housing conditions under which the families surveyed lived are to some extent brought out in tables 10 and 19, which refer to large and small towns respectively. Thus in large towns (tables 10A and 10B), as the income and food expenditure increased, so did the overcrowding conditions improve—in table 10B, which presents the more dependable figures, two or more persons per room were met with only in the lowest economic group. In table 10C, showing the position according to size of family, the number of persons per room was 1.9 where the family consisted of 8, 9, 10 or 11 persons, and only in families of greater size than this did the severe figure of 3.2 persons per room arise. In general, the figures in table 10 bear a very close resemblance to the Dublin figures already published.

In small towns (tables 19A and 19B) similar trends are seen. In table 19B more than two persons per room were encountered only in the lowest group. In the table (19C) showing the figures when the families are classified according to the number of persons in the family, figures of more than two persons per room were met with in all families of more than 7 persons. It appears that, from this point of view, housing conditions were somewhat better in large than in small towns : the figures for both groups of towns, however, bore a close resemblance to the Dublin figures already published.

Summary.

(1) A food survey was made in 13 large towns from October, 1946, to May, 1947, of 329 families, comprising 2,082 persons, and in 49 small towns from May, 1947, to September, 1948, of 516 families comprising 3,442 persons.

(2) In both groups, the consumption of milk, eggs, meat, fish, vegetables and fruit increased substantially as income and food expenditure increased, and decreased, though less steadily, as the number of persons in the family increased. The trends shown in the consumption of bread and potatoes did not conform very closely to the uniform pattern seen in the case of dearer foods. The consumption of fats, and more especially that of sugar, did not vary much with income or food expenditure, and this probably depended on rationing. Consumption of cheese was low, more particularly in the small towns. The average consumption of milk was 4.4 pints per diet-head weekly in large towns, but rose to 5.1 pints in the small towns. It is probable that this difference, as well as the higher consumption of meat and the

lower consumption of potatoes in the large towns when compared with the small, represents an inclination towards a more rural pattern in the small towns.

(3) In both large and small towns, the intake of most nutrients was generally satisfactory. Intakes of calcium and vitamin A, however, were deficient in the groups of families taken as a whole, and markedly so in those families which were in poorer economic circumstances.

Intakes of calories were sufficient in all the families except the poorest, in which definite deficiencies were observed.

(4) In the poorest families surveyed in both large and small towns, more than half the total meals of the week consisted of " bread and spread," and the frequency of this kind of meal fell steadily as more money was spent on food. Thus in families in which the expenditure on food per diet-head weekly was less than 10/-, the frequency of the " bread and spread " meal was between 52 per cent. and 55 per cent. at all ages, whereas when the expenditure was over 20/-, the figure fell to between 17 per cent. and 26 per cent. Conversely the frequency of the better " cooked " meal increased from about 30 per cent. in the families with the lowest expenditure on food to over 60 per cent. in the more well-to-do families.

(5) The principal defects of the diets, noted above as consisting of shortages of calcium and vitamin A, could be rectified by an increased consumption of milk, and a greater use of cheese.

(6) Housing conditions in both large and small towns were, as regards overcrowding, very similar to conditions in Dublin, as shown by the figures published earlier, and the tables indicate definite overcrowding among the poorer families, becoming severe where the families were very large (over 11 persons).

TABLE 1A.—AVERAGE COMPOSITION OF 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO INCOME.

Family Composition	Income per Head Weekly						
	Under 10/–	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All incomes
Total number of families	49	60	67	63	87	(*a*)	329
Total number of persons	359	422	396	397	489		2,082
Total number of diet-heads	347.2	418.3	403.8	395.4	482.9		2,066.7
Children 0–14 per family	4.3	3.7	2.8	2.0	1.2		2.6
Children 15–16 per family	0.3	0.2	0.2	0.3	0.1		0.2
Other persons per family	2.7	3.1	2.9	4.0	4.3		3.5
Total persons per family	7.3	7.0	5.9	6.3	5.6		6.3
Percentage distribution of families	14.9	18.2	20.4	19.1	26.4		100

(*a*) Insufficient number of families to give trustworthy results.

TABLE 1B.—AVERAGE COMPOSITION OF 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

FAMILY COMPOSITION	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Total number of families	113	106	65	45	329
Total number of persons	804	655	390	233	2,082
Total number of diet-heads	797.4	651.0	389.8	228.5	2,066.7
Children 0—14 per family	3.6	2.8	1.7	0.9	2.6
Children 15-16 per family	0.3	0.2	0.2	0.1	0.2
Other persons per family	3.2	3.2	4.1	4.2	3.5
Total persons per family	7.1	6.2	6.0	5.2	6.3
Percentage distribution of families	34.3	32.2	19.8	13.7	100

TABLE 1C.—AVERAGE COMPOSITION OF 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Family Composition	Number of Persons in Family					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Total number of families	24	54	152	89	10	329
Total number of persons	42	193	922	799	126	2,082
Total number of diet-heads	43.1	193.3	912.6	792.5	125.2	2,066.7
Children 0—14 per family	0.1	0.9	2.4	4.4	5.6	2.6
Children 15–16 per family	—	0.1	0.2	0.3	0.5	0.2
Other persons per family	1.7	2.6	3.5	4.3	6.5	3.5
Total persons per family	1.8	3.6	6.1	9.0	12.6	6.3
Percentage distribution of families	7.3	16.4	46.2	27.1	3.0	100

TABLE 2A.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO INCOME.

Commodity Group	Unit of Quantity	Income per Head Weekly						
		Under 10/–	10/- — 15/-	15/– — 20/–	20/- — 30/-	Over 30/–	Income not stated	All incomes
Milk (*a*)	Pints	3.3	3.3	4.0	4.8	6.3	(*f*)	4.4
Cheese	Oz.	0.3	0.8	1.1	1.5	2.0		1.2
Eggs	Number	1.0	1.8	2.6	4.3	6.3		3.4
Fats (*b*)	Oz.	7.3	7.4	8.2	10.2	10.9		8.9
Meat (*c*)	,,	14.9	21.4	27.3	36.4	50.2		31.2
Fish	,,	1.5	0.9	2.0	2.6	4.8		2.5
Flour and Bread (*d*)	,,	87.5	82.3	81.4	85.3	77.3		82.1
Other Cereals	,,	2.9	5.1	5.6	9.9	15.0		8.1
Potatoes, including Chips	,,	86.1	88.6	104.9	112.1	115.9		102.7
Vegetables	,,	13.9	17.6	24.3	29.7	38.2		25.6
Fruit and Fruit Products	,,	0.8	2.1	5.0	8.0	14.8		6.7
Sugar	,,	8.4	7.8	8.7	9.5	10.4		9.0
Preserves	,,	1.3	2.2	4.0	4.9	6.5		4.0
Miscellaneous (*e*)	,,	0.6	0.4	1.0	0.7	1.0		0.7

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.
(*f*) Insufficient number of families to give trustworthy results.

TABLE 2B.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY GROUP	Unit of Quantity	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Milk (*a*)	Pints	2.9	4.7	5.6	7.1	4.4
Cheese	Oz.	0.7	1.0	2.0	2.0	1.2
Eggs	Number	1.2	3.3	5.4	7.7	3.4
Fats (*b*)	Oz.	6.6	9.3	10.9	12.3	8.9
Meat (*c*)	,,	17.8	29.4	45.4	58.8	31.2
Fish	,,	1.1	2.1	3.6	6.6	2.5
Flour and Bread (*d*)	,,	81.1	83.0	85.8	76.6	82.1
Other Cereals	,,	2.4	8.4	13.2	18.8	8.1
Potatoes including Chips	,,	84.9	109.5	115.9	122.8	102.7
Vegetables	,,	14.6	25.8	38.0	42.0	25.6
Fruit and Fruit Products	,,	0.9	6.8	10.5	20.2	6.7
Sugar	,,	7.6	9.6	10.2	10.4	9.0
Preserves	,,	1.5	4.5	6.3	7.1	4.0
Miscellaneous (*e*)	,,	0.5	0.8	0.8	1.2	0.7

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c* Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 2C.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Commodity Group	Unit of Quantity	Number of Persons in Family					
		1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Milk (*a*)	Pints	6.7	5.3	4.6	4.2	2.9	4.4
Cheese	Oz.	2.2	0.9	1.2	1.3	0.7	1.2
Eggs	Number	4.2	3.8	4.0	2.7	2.4	3.4
Fats (*b*)	Oz.	16.6	10.1	9.1	8.2	7.2	8.9
Meat (*c*)	,,	35.3	33.7	33.9	27.2	32.2	31.2
Fish	,,	4.7	2.8	2.7	2.3	1.4	2.5
Flour and Bread (*d*)	,,	100.2	86.9	81.6	79.3	90.0	82.1
Other Cereals	,,	15.2	9.5	9.1	6.7	5.4	8.1
Potatoes including Chips ..	,,	101.5	117.9	105.1	96.8	99.3	102.7
Vegetables	,,	38.0	31.0	26.3	23.7	19.3	25.6
Fruit and Fruit Products ..	,,	5.5	8.6	8.2	5.3	1.9	6.7
Sugar	,,	10.3	9.8	9.2	8.7	8.1	9.0
Preserves	,,	8.1	4.4	4.2	3.5	3.5	4.0
Miscellaneous (*e*)	,,	1.3	0.9	0.8	0.6	0.6	0.7

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 3.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY	Unit of Quantity	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Butter	Oz.	5.0	6.8	7.8	8.6	6.5
Margarine	,,	0.8	1.1	1.3	1.2	1.0
Other fats	,,	0.7	1.4	1.8	2.5	1.3
Sugar	,,	7.6	9.6	10.2	10.4	9.1
Preserves	,,	1.5	4.5	6.1	7.1	4.0
Syrup and treacle	,,	—	0.0	0.2	—	0.0
Milk liquid, milk whole condensed, and milk whole dried	Pints	2.8	4.4	5.2	6.9	4.2
Skimmed milk and buttermilk and skimmed condensed milk	,,	0.1	0.2	0.3	0.2	0.2
Cheese	Oz.	0.7	1.0	2.0	2.0	1.2
Eggs	Number	1.2	3.3	5.4	7.7	3.4
Beef and veal	Oz.	6.8	11.1	14.7	16.2	10.7
Mutton and lamb	,,	1.2	4.1	7.3	12.1	4.5
Pork	,,	0.0	0.7	1.5	1.9	0.8
Bones	,,	0.2	0.3	0.2	—	0.2
Corned beef, mutton and pork	,,	2.7	2.5	3.7	2.9	2.8
Bacon	,,	1.1	3.0	5.8	10.3	3.6
Liver, sheep	,,	0.1	0.3	0.4	0.3	0.2
,, other	,,	0.3	0.3	0.7	0.2	0.4
Other offals	,,	1.4	1.3	2.6	5.1	2.0
Cooked and canned meat	,,	0.7	0.8	1.0	1.5	0.9
Sausages (uncooked)	,,	2.3	3.3	5.2	5.9	3.6
Other meat products	,,	0.9	1.6	2.2	2.6	1.6
White fish	,,	0.4	0.8	1.4	3.4	1.0
,, processed	,,	—	0.1	0.3	0.4	0.1

Fat fish, fresh	,,	0.6	1.1	1.3	1.9	1.0
,, ,, processed	,,	0.1	0.1	0.4	0.8	0.2
Fish, canned	,,	—	0.0	0.1	0.1	0.0
Potatoes, unpeeled, peeled and chips	,,	84.9	109.7	115.9	122.8	102.7
Carrots	,,	0.3	1.3	3.3	4.0	1.6
Other roots	,,	7.4	10.6	14.5	11.9	10.3
Green vegetables	,,	3.4	8.3	12.3	16.1	8.0
Miscellaneous vegetables	,,	3.0	4.2	5.7	6.8	4.3
Legumes, fresh	,,	—	—	0.4	0.4	0.1
Pulses, dried	,,	0.5	1.1	1.2	1.9	1.0
,, canned	,,	0.0	0.2	0.5	0.9	0.3
Tomatoes	,,	0.0	0.7	0.9	2.4	0.7
Citrus fruits	,,	0.2	0.9	1.9	4.8	1.2
Other fruit	,,	0.5	4.3	5.5	9.7	3.7
Bottled and canned fruit	,,	—	0.0	0.3	0.6	0.3
Dried vine fruit	,,	0.2	0.6	1.2	1.4	0.6
Other dried fruit	,,	0.0	0.2	0.7	1.2	0.3
Flour	,,	9.1	15.4	18.0	16.2	12.0
Bread	,,	92.6	87.3	87.7	78.1	88.0
Biscuits, including wafers, excluding oatmeal biscuits		0.0	0.7	1.3	3.4	0.9
Cakes	,,	0.0	1.0	2.9	4.9	1.4
Puddings	,,	—	—	0.0	0.2	0.0
Oatmeal and oat products	,,	2.0	5.0	6.4	6.0	4.2
Breakfast cereals	,,	0.1	0.5	0.7	0.8	0.4
Cereals (rice and barley)	,,	0.0	0.1	0.1	0.3	0.1
Cereals (flour base)	,,	0.0	0.4	0.7	1.5	0.4
Other cereals	,,	0.1	0.7	1.1	1.7	0.7
Cocoa and cocoa-based drinks	,,	0.2	0.3	0.3	0.3	0.3
Patent drinks and patent foods	,,	0.0	0.1	0.0	0.1	0.1
Soups and extracts	,,	0.0	0.0	0.1	0.2	0.0

TABLE 4A.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO INCOME.

COMMODITY GROUP	INCOME PER HEAD WEEKLY						
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All incomes
	s. d.	s. d.	s. d.	s. d.	s. d.		s. d.
Milk	10	11	1 2	1 5	1 11	(*d*)	1 4
Cheese	0	1	2	2	3		2
Eggs	3	6	9	1 4	1 11		1 0
Fats (*a*)	1 0	1 0	1 0	1 3	1 5		1 2
Meat (*b*)	1 5	2 2	2 11	4 0	6 4		3 6
Fish	1	1	2	2	5		2
Flour and Bread	2 0	1 11	1 11	2 1	1 10		1 11
Other Cereals	1	3	4	7	1 1		6
Potatoes including Chips . .	8	9	10	11	11		10
Vegetables	3	4	6	7	10		6
Fruit and Fruit Products . .	0	1	2	5	10		4
Sugar	4	3	3	3	4		3
Preserves	1	2	3	4	6		4
Miscellaneous (*c*)	5	5	6	7	9		6
Total Expenditure . .	7 5	8 11	10 11	14 1	19 4		12 6

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.
(*d*) Insufficient number of families to give trustworthy results.

TABLE 4B.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Commodity Group	Food Expenditure per Diet-head Weekly				
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	9	1 4	1 8	2 3	1 4
Cheese	1	2	3	3	2
Eggs	4	1 0	1 8	2 4	1 0
Fats (*a*)	11	1 3	1 4	1 7	1 2
Meat (*b*)	1 9	3 2	5 5	7 8	3 6
Fish	1	2	3	8	2
Flour and Bread	1 10	2 0	2 1	1 10	1 11
Other Cereals	1	6	11	1 7	6
Potatoes including Chips	8	10	11	1 0	10
Vegetables	3	6	9	1 1	6
Fruit and Fruit Products	0	3	7	1 3	4
Sugar	3	3	4	4	3
Preserves	1	4	6	7	4
Miscellaneous (*c*)	5	6	8	10	6
Total Expenditure	7 6	12 3	17 4	23 3	12 6

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 40.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

COMMODITY GROUP	NUMBER OF PERSONS IN FAMILY					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	1 8	1 7	1 5	1 2	10	1 4
Cheese	3	1	2	2	1	2
Eggs	1 4	1 2	1 2	9	9	1 0
Fats (*a*)	1 3	1 4	1 3	1 1	11	1 2
Meat (*b*)	3 10	4 0	3 11	3 0	3 0	3 6
Fish	3	3	3	2	1	2
Flour and Bread	2 3	2 0	1 11	1 11	2 1	1 11
Other Cereals	8	8	7	5	4	6
Potatoes including Chips ..	10	11	10	9	10	10
Vegetables	8	7	7	5	5	6
Fruit and Fruit Products ..	5	6	5	3	1	4
Sugar	4	3	3	3	3	3
Preserves	7	4	4	3	4	4
Miscellaneous (*c*)	8	8	7	6	4	6
Total Expenditure ..	15 0	14 4	13 8	11 1	10 4	12 6

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 5.—RECOMMENDED DAILY REQUIREMENTS OF NUTRIENTS PER HEAD (LEAGUE OF NATIONS TECHNICAL COMMISSION).

AGE IN YEARS	Under 1 year	1–3 years	4–7 years	8–12 years	13–15 years	16–17 years	18–21 years	Males			Females		
								Sedentary work	Medium work	Heavy work	Sedentary work	Medium work	Pregnant or Lactating
Calories	800	1,100	1,500	2,100	2,900	3,000	3,000	2,500	3,000	4,500	2,500	3,000	3,000
Protein gms. ..	20	42	50	65	95	100	90	70	70	70	60	60	80
Calcium gms. ..	0.4	1.1	1.3	1.4	1.5	1.4	1.1	0.8	0.8	0.8	0.8	0.8	1.5
Iron mgms.	3.0	5.0	8.0	13.0	16.0	15.0	13.0	10.0	10.0	10.0	10.0	10.0	13.0
Vitamin A i.u. ..	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	5,000
Vitamin B_1 μgms.	360	495	675	945	1,305	900	900	900	900	900	750	750	1,800
(*a*) Riboflavin mgms...	0.6	0.9	1.1	1.6	2.1	2.3	2.4	1.9	1.9	1.9	1.5	1.5	3.0
(*a*) Niacin mgms. ..	4	6	7	11	14	16	16	13	13	13	11	11	23
(*b*) Vitamin C i.u. ..	600	600	600	600	600	600	600	600	600	600	600	600	900

(*a*) Recommendations in respect of riboflavin and niacin taken from National Research Council's (U.S.A.) scale.

(*b*) 20 i.u. Vitamin C=1 mgm.

TABLE 6.—DAILY INTAKE PER DIET-HEAD OF NUTRIENTS OF 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Food expenditure per diet-head weekly	Animal protein gms.	Vegetable protein gms.	Total protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.
Under 10/–	20	46	66	55	326	2,063	676	14.5	1,558	118	1,676	1,421	1.4	13	691
10/- — 15/- ..	33	54	87	87	392	2,699	963	18.5	2,602	411	3,013	1,784	2.0	17	1,192
15/- — 20/- ..	47	57	104	117	430	3,185	1,167	22.3	3,430	907	4,337	2,021	2.5	20	1,333
Over 20/– ..	61	56	117	146	437	3,530	1,318	23.8	3,386	1,163	4,549	2,201	2.9	22	1,511
All expenditures	34	52	86	87	379	2,637	930	18.2	2,442	475	2,917	1,735	2.0	16	1,060

TABLE 7A.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO INCOME.

Income per head weekly	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Under 10/- ..	104	97	63	137	61	174	90	122	121
10/- — 15/- ..	108	97	64	144	73	172	94	121	125
15/- — 20/- ..	122	107	77	163	79	195	111	142	186
20/- — 30/- ..	135	112	97	184	116	216	126	151	204
Over 30/- ..	159	128	126	208	137	244	155	168	223
Income not stated	—	—	—	(*a*)	—	—	—	—	—
All incomes ..	128	110	86	169	96	202	118	143	176

(*a*) Insufficient number of families to give trustworthy results

TABLE 7B.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF [illegible] FAMILIES LIVING CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Food expenditure per diet-head weekly	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Under 10/– ..	98	88	59	132	55	162	84	112	114
10/– — 15/- ..	131	114	88	175	100	211	123	150	198
15/- — 20/- ..	153	125	114	205	143	235	144	167	221
Over 20/– ..	176	139	139	230	151	267	174	186	251
All expenditures ..	128	110	86	169	96	202	118	143	176

TABLE 7C.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Number in family	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
1 or 2 persons ..	172	131	156	248	185	245	149	163	205
3 or 4 ,, ..	144	117	108	193	114	232	136	160	201
5, 6 or 7 ,, ..	133	114	89	177	102	210	124	150	185
8, 9, 10 or 11 ,, ..	117	103	78	152	86	186	108	132	163
Over 11 ,, ..	116	101	64	165	57	191	99	135	135
All sizes of family .	128	110	86	169	96	202	118	143	176

TABLE 8.—PERCENTAGE OF TOTAL MEALS EATEN AS "BREAD AND SPREAD" AND AS "COOKED" MEALS BY PERSONS OF VARIOUS AGE GROUPS IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Food expenditure per diet-head weekly	Age 3—14 years		Age 15—19 years		Over 20 years	
	Bread and Spread	Cooked	Bread and Spread	Cooked	Bread and Spread	Cooked
Under 10/- ..	52	30	54	32	53	32
10/- to 15/- ..	30	42	36	49	37	49
15/- to 20/- ..	21	53	26	60	25	60
Over 20/- ..	17	61	24	65	21	67
All expenditures ..	39	39	40	46	32	50

" Bread and Spread " meals mean tea, etc., with bread and butter, margarine, jam or other such spread.

" Cooked" meals mean eggs, bacon, sausages, meat (hot or cold) or vegetables, etc.

TABLE 9.—PERCENTAGE FREQUENCY OF VARIOUS KINDS OF MEALS EATEN BY VARIOUS AGE-GROUPS IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Type of Meal	Both sexes 3 to 14 years					Both sexes 15 to 19 years					Both sexes over 20 years				
	Food expenditure per diet-head weekly					Food expenditure per diet-head weekly					Food expenditure per diet-head weekly				
	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	All expenditures	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	All expenditures	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	All expenditures
BREAKFASTS.															
Milk drink or bread and spread with(out) drink	72	27	14	9	47	74	35	14	12	44	70	35	14	7	36
Cereals with(out) bread and spread	13	41	28	37	26	10	25	15	13	16	9	18	17	16	15
Cereals with cooked protein ..	2	10	21	29	8	1	15	18	34	12	2	11	22	27	14
Cooked protein without vegetables	13	21	37	24	19	15	25	53	41	28	19	35	47	49	35
Other Breakfasts	0	1	—	1	0	0	—	0	—	0	0	1	0	1	0
ALL BREAKFASTS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
DINNERS.															
Milk drink or bread and spread with(out) drink	7	1	—	—	4	7	0	—	1	3	7	3	1	0	3
Potato and milk or butter with bread and spread	10	3	6	1	7	7	1	—	5	4	9	2	1	1	4
Cooked protein with(out) vegetables	41	23	9	4	29	44	25	11	10	28	42	23	13	7	24
Cooked protein with vegetables and bread and spread or pudding ..	40	70	83	95	58	41	72	88	84	64	41	70	84	92	68

Other Dinners	2	3	2	—	2	1	2	1	—	1	1	2	1	—	1
ALL DINNERS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
TEAS.															
No meal	1	1	1	—	1	0	—	—	—	0	0	1	0	—	1
Milk drink and bread and spread with(out) drink	84	44	30	15	61	79	37	21	20	49	82	42	26	17	46
Cereals with(out) bread and spread	0	1	2	0	1	0	1	—	—	0	0	0	0	—	0
Potato and milk or butter with bread and spread	1	4	3	0	2	—	2	2	1	1	0	4	3	2	2
Cooked protein with(out) vegetables	12	36	46	73	27	18	49	57	67	41	15	42	56	65	41
Cooked protein with vegetables and bread and spread or pudding ..	1	2	5	6	2	2	2	8	6	3	1	4	6	9	4
Cake	1	9	12	3	5	1	6	10	3	5	1	5	8	4	5
Other Teas	0	3	1	3	1	0	3	2	3	1	1	2	1	3	1
ALL TEAS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SUPPERS.															
No meal	53	36	45	39	45	36	10	19	7	21	36	14	16	10	20
Milk drink and bread and spread with(out) drink	42	49	40	46	45	57	72	67	67	65	53	67	60	61	60
Cereals with(out) bread and spread	3	5	7	—	4	5	4	3	8	5	9	5	4	4	6
Cooked protein with(out) vegetables	1	2	3	10	2	1	5	6	8	4	1	5	8	16	6
Cake	—	1	1	3	1	0	2	3	7	2	0	1	3	3	2
Other Suppers	1	7	4	2	3	1	7	2	3	3	1	8	9	6	6
ALL SUPPERS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

TABLE 10A.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO INCOME.

	INCOME PER HEAD WEEKLY						
	Under 10/–	10/– — 15/–	15/– — 20/–	20/- — 30/-	Over 30/-	Income not stated	All incomes
Number of families	50	60	66	63	87	(*a*)	329
,, ,, persons	359	422	396	397	489		2,082
,, ,, rooms	152	204	245	285	531		1,437
Rooms per family	3.0	3.4	3.7	4.5	6.1		4.4
Persons per room	2.4	2.1	1.6	1.4	0.9		1.4

(*a*) Insufficient number of families to give trustworthy data.

TABLE 10B.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN LARGE TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

	Food Expenditure per Diet-head Weekly				
	Under 10/–	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Number of families	113	106	65	45	329
,, ,, persons	804	655	390	233	2,082
,, ,, rooms	378	425	339	295	1,437
Rooms per family	3.3	4.0	5.2	6.6	4.4
Persons per room	2.1	1.5	1.2	0.8	1.4

TABLE 10C.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 329 FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

	Number of Persons in Family					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Number of families	24	54	152	89	10	329
,, ,, persons	42	193	922	799	126	2,082
,, ,, rooms	82	213	684	419	39	1,437
Rooms per family	3.4	3.9	4.5	4.7	3.9	4.4
Persons per room	0.5	0.9	1.3	1.9	3.2	1.4

TABLE 11A.—AVERAGE COMPOSITION OF 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO INCOME.

Family Composition	Income per Head Weekly						
	Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All incomes
Total number of families . .	48	80	81	91	132	84	516
Total number of persons . .	381	606	523	519	772	641	3,442
Total number of diet-heads . .	376.8	591.8	525.5	526.1	772.6	636.7	3,429.5
Children 0—14 per family . .	4.9	4.1	2.8	1.9	1.5	3.8	2.9
Children 15—16 per family . .	0.4	0.3	0.3	0.3	0.2	0.2	0.3
Other persons per family . .	2.6	3.2	3.4	3.5	4.1	3.6	3.5
Total persons per family	7.9	7.6	6.5	5.7	5.8	7.6	6.7
Percentage distribution of families	9.3	15.5	15.7	17.6	25.6	16.3	100

TABLE 11B.—AVERAGE COMPOSITION OF 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Family Composition	Food Expenditure per Diet-head Weekly				
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Total number of families	164	189	103	60	516
Total number of persons	1,265	1,274	587	316	3,442
Total number of diet-heads	1,254.7	1,277.8	574.8	322.8	3,429.5
Children 0—14 per family	4.3	2.8	1.7	1.2	2.9
Children 15—16 per family	0.4	0.3	0.2	0.1	0.3
Other persons per family	3.0	3.6	3.8	4.0	3.5
Total persons per family	7.7	6.7	5.7	5.3	6.7
Percentage distribution of families..	31.8	36.6	20.0	11.6	100

TABLE 11C.—AVERAGE COMPOSITION OF 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Family Composition	Number of Persons in Family					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Total number of families ..	36	110	180	163	27	516
Total number of persons ..	72	390	1,114	1,517	349	3,442
Total number of diet-heads ..	72.9	394.7	1,111.4	1,502.1	348.4	3,429.5
Children 0—14 per family ..	0.1	0.6	2.6	4.5	7.3	2.9
Children 15–16 per family ..	—	0.0	0.2	0.5	0.4	0.3
Other persons per family ..	1.9	2.9	3.4	4.3	5.2	3.5
Total persons per family ..	2.0	3.5	6.2	9.3	12.9	6.7
Percentage distribution of families	7.0	21.3	34.9	31.6	5.2	100

TABLE 12A.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO INCOME.

COMMODITY GROUP	Unit of Quantity	INCOME PER HEAD WEEKLY						
		Under 10/-	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All incomes
Milk (*a*)	Pints	3.7	3.8	4.8	5.7	6.7	5.0	5.1
Cheese	Oz.	0.3	0.6	1.1	1.0	0.9	0.6	0.8
Eggs	Number	0.7	2.1	3.3	4.0	6.1	3.8	3.7
Fats (*b*)	Oz.	6.0	7.4	8.3	9.7	10.5	9.1	8.7
Meat (*c*)	,,	8.6	16.1	22.6	29.6	42.0	20.9	25.1
Fish	,,	2.0	1.8	2.4	4.8	4.5	2.3	3.1
Flour and Bread (*d*) ..	,,	79.1	83.0	73.6	85.3	77.0	81.0	79.4
Other Cereals	,,	3.1	5.4	7.2	6.2	10.3	5.5	6.7
Potatoes including Chips ..	,,	78.6	102.8	105.5	119.9	115.4	129.7	111.0
Vegetables	,,	11.0	16.3	22.2	27.9	32.1	19.4	22.6
Fruit and Fruit Products ..	,,	0.7	2.9	4.7	7.6	10.7	4.7	5.7
Sugar	,,	11.1	11.4	11.0	11.7	12.1	11.9	11.6
Preserves	,,	2.3	3.4	4.9	5.5	5.5	4.0	4.4
Miscellaneous (*e*)	,,	0.2	0.4	0.4	0.7	0.5	0.3	0.4

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 12B.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY GROUP	Unit of Quantity	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
		Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Milk (*a*)	Pints	3.8	5.1	6.5	7.7	5.1
Cheese	Oz.	0.4	1.0	0.8	1.4	0.8
Eggs	Number	1.6	3.7	5.9	7.7	3.7
Fats (*b*)	Oz.	6.8	9.1	10.0	12.7	8.7
Meat (*c*)	,,	12.2	24.7	36.2	56.9	25.1
Fish	,,	1.7	3.1	4.2	6.5	3.1
Flour and bread (*d*)	,,	78.7	77.7	83.7	80.8	79.4
Other Cereals	,,	3.9	6.8	8.7	13.2	6.7
Potatoes including Chips	,,	97.1	114.3	126.4	125.0	111.0
Vegetables	,,	12.3	24.4	31.3	40.0	22.6
Fruit and Fruit Products ..	,,	1.5	6.1	8.5	16.0	5.7
Sugar	,,	11.1	11.4	12.1	13.7	11.6
Preserves	,,	2.8	4.8	5.6	7.0	4.4
Miscellaneous (*e*)	,,	0.3	0.4	0.6	0.6	0.4

(*a*) All forms stated as liquid milk

(*b*) Including butter, margarine, suet, lard, etc.

(*c*) Including beef, mutton, pork, bacon, poultry and offals.

(*d*) Expressed as flour.

(*c*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 12C.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Commodity Group	Unit of Quantity	Number of Persons in Family					
		1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Milk (*a*)	Pints	7.8	6.0	5.5	4.7	4.2	5.1
Cheese	Oz.	1.4	0.7	0.8	0.7	0.9	0.8
Eggs	Number	4.5	5.6	4.1	3.1	2.8	3.7
Fats (*b*)	Oz.	8.3	9.9	9.3	8.3	7.5	8.7
Meat (*c*)	,,	36.1	32.7	26.9	22.1	20.9	25.1
Fish	,,	3.8	3.8	3.3	3.0	1.8	3.1
Flour and Bread (*d*)	,,	92.1	82.8	76.8	78.0	86.9	79.4
Other Cereals	,,	6.2	7.7	7.1	6.5	5.1	6.7
Potatoes including Chips	,,	122.5	111.3	109.5	112.4	107.2	111.0
Vegetables	,,	30.0	27.6	24.3	19.6	22.3	22.6
Fruit and Fruit Products	,,	7.1	8.4	6.9	4.8	3.0	5.7
Sugar	,,	12.0	12.4	11.8	11.4	10.6	11.6
Preserves	,,	6.5	5.3	5.0	3.8	4.0	4.4
Miscellaneous (*e*)	,,	0.5	0.4	0.6	0.3	0.4	0.4

(*a*) All forms stated as liquid milk.

(*b*) Including butter, margarine, suet, lard, etc.

(*c*) Including beef, mutton, pork, bacon, poultry and offals.

(*d*) Expressed as flour.

(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 13.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY	Unit of Quantity	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
		Under 10/-	10/- — 15/-	15/- — 20/-	over 20/-	All expenditures
Butter	Oz.	5.1	7.1	8.2	10.3	6.8
Margarine	,,	1.3	1.4	1.4	1.4	1.4
Other fats	,,	0.4	0.6	0.5	1.0	0.5
Sugar	,,	11.1	11.4	12.2	13.7	11.6
Preserves	,,	2.7	4.8	5.5	6.7	4.3
Syrup and treacle	,,	0.1	0.1	0.2	0.3	0.1
Milk liquid, milk whole condensed, and milk whole dried	Pints	3.2	4.5	5.9	7.2	4.5
Skimmed milk and buttermilk and skimmed condensed milk	,,	0.6	0.5	0.5	0.4	0.5
Cheese	Oz.	0.4	1.0	0.8	1.4	0.8
Eggs	Number	1.6	3.7	5.9	7.6	3.7
Beet and veal	Oz.	6.3	12.2	15.7	20.1	11.3
Mutton and lamb	,,	0.9	2.3	5.1	10.7	3.0
Pork	,,	0.1	0.1	0.6	0.5	0.2
Bones	,,	0.1	0.2	0.1	0.8	0.2
Corned beef, mutton and pork	,,	0.7	1.4	1.8	3.3	1.4
Bacon	,,	1.2	3.2	5.9	8.9	3.4
Liver (sheep)	,,	0.1	0.1	0.3	0.4	0.2
Liver (other)	,,	0.1	0.1	0.2	0.2	0.1
Other offals	,,	0.3	0.9	1.5	4.2	1.1
Cooked and canned meat	,,	0.3	0.5	0.4	1.7	0.5
Sausages, uncooked	,,	1.3	2.8	3.7	4.2	2.5
Other meat products	,,	0.5	0.8	1.2	1.8	0.9
White fish	,,	0.4	1.2	1.8	2.7	1.1

White fish, processed	,,	0.0	0.2	0.3	0.0	0.1
Fat fish, fresh	,,	0.9	1.3	1.7	3.3	1.4
,, ,, processed	,,	0.3	0.4	0.2	0.0	0.3
Fish canned	,,	0.1	0.1	0.2	0.3	0.1
Potatoes, unpeeled, peeled and chips	,,	97.1	114.3	127.5	125.0	111.0
Carrots	,,	1.0	1.3	2.2	3.2	1.5
Other roots	,,	3.6	6.4	7.6	8.9	5.8
Green vegetables	,,	5.3	12.5	15.6	19.6	11.1
Miscellaneous vegetables	,,	2.1	3.2	3.8	4.5	3.3
Legumes, fresh	,,	—	0.1	0.2	1.1	0.2
Pulses, dried	,,	0.2	0.6	1.1	1.0	0.7
,, canned	,,	0.1	0.3	1.2	1.3	0.5
Tomatoes	,,	0.3	1.4	2.1	3.6	1.3
Citrus fruits	,,	0.1	0.7	1.1	2.0	0.7
Other fruit	,,	0.7	3.0	4.2	8.0	2.9
Bottled and canned fruit	,,	—	0.0	0.2	0.5	0.1
Dried vine fruit	,,	0.3	0.8	0.7	1.3	0.6
Other dried fruit	,,	0.0	0.1	0.3	0.4	0.2
Flour	,,	30.1	30.1	30.6	26.2	29.8
Bread	,,	62.7	61.5	68.6	70.6	64.0
Biscuits, including wafers, excluding oatmeal biscuits	,,	0.3	0.7	1.6	3.1	0.9
Cakes	,,	0.1	0.6	0.8	2.5	0.7
Puddings	,,	—	0.0	0.2	0.2	0.1
Oatmeal and oat products	,,	3.2	4.1	4.5	3.9	3.8
Breakfast cereals	,,	0.1	0.2	0.3	0.7	0.2
Cereals (rice and barley)	,,	0.0	0.1	0.1	0.2	0.1
Cereals (flour base)	,,	0.0	0.2	0.3	0.3	0.2
Other cereals	,,	0.2	0.8	1.0	2.2	0.7
Cocoa and cocoa-based drinks	,,	0.2	0.3	0.3	0.1	0.2
Patent drinks and foods	,,	0.0	0.1	0.1	0.2	0.1
Soups and extracts	,,	0.0	0.0	0.1	0.3	0.1

TABLE 14A.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO INCOME.

Commodity Group	Income per Head Weekly						
	Under 10/–	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/–	Income not stated	All incomes
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	9	1 0	1 2	1 6	1 11	1 3	1 4
Cheese	1	1	2	2	1	1	1
Eggs	2	7	11	1 1	1 9	1 1	1 0
Fats (*a*)	10	1 1	1 3	1 6	1 7	1 5	1 4
Meat (*b*)	11	1 11	2 9	3 10	5 8	2 8	3 3
Fish	1	2	2	5	5	2	3
Flour and Bread	1 6	1 8	1 6	1 7	1 7	1 8	1 7
Other Cereals	1	3	5	5	10	4	5
Potatoes, including Chips ..	8	1 0	1 1	1 2	1 1	1 2	1 1
Vegetables	2	4	5	7	9	4	5
Fruit and Fruit Products ..	0	2	3	5	8	3	4
Sugar	3	3	3	3	3	4	3
Preserves	2	3	5	5	6	4	4
Miscellaneous (*c*)	4	5	6	7	8	6	6
Total Expenditure ..	6 0	9 2	11 3	13 11	17 9	11 7	12 2

(*a*) Including butter, margarine, suet, lard, etc.

(*b*) Including beef, mutton, pork, bacon, poultry and offals.

(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 14B.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

COMMODITY GROUP	FOOD EXPENDITURE PER DIET-HEAD WEEKLY				
	Under 10/-	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	11	1 4	1 10	2 2	1 4
Cheese	1	2	1	3	1
Eggs	5	1 0	1 8	2 2	1 0
Fats (*a*)	1 0	1 4	1 7	1 11	1 4
Meat (*b*)	1 5	3 1	5 0	7 11	3 3
Fish	1	3	4	8	3
Flour and Bread	1 7	1 7	1 9	1 8	1 7
Other Cereals	2	5	8	1 3	5
Potatoes, including Chips	11	1 1	1 3	1 2	1 1
Vegetables	3	6	8	11	5
Fruit and Fruit Products	1	4	6	1 1	4
Sugar	3	3	4	4	3
Preserves	3	4	6	7	4
Miscellaneous (*c*)	5	6	8	10	6
Total Expenditure	7 10	12 2	16 10	22 11	12 2

(*a*) Including butter, margarine, suet, lard, etc.

(*b*) Including beef, mutton, pork, bacon, poultry and offals.

(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 14C.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

COMMODITY GROUP	NUMBER OF PERSONS IN FAMILY					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	1 8	1 7	1 5	1 3	1 1	1 4
Cheese	2	1	1	1	1	1
Eggs	1 3	1 7	1 2	10	9	1 0
Fats (*a*)	1 3	1 6	1 5	1 3	1 2	1 4
Meat (*b*)	4 8	4 6	3 5	2 10	2 7	3 3
Fish	3	4	3	3	2	3
Flour and Bread	1 10	1 8	1 7	1 6	1 10	1 7
Other Cereals	6	7	6	5	3	5
Potatoes, including Chips ..	1 4	1 1	1 1	1 1	1 1	1 1
Vegetables	6	7	6	5	5	5
Fruit and Fruit Products ..	4	6	5	4	2	4
Sugar	4	3	3	3	3	3
Preserves	6	5	5	4	4	4
Miscellaneous (*c*)	8	8	6	6	6	6
Total expenditure	15 3	15 4	13 0	11 4	10 8	12 2

(*a*) Including butter, margarine, suet, lard, etc.

(*b*) Including beef, mutton, pork, bacon, poultry and offals.

(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 15.—DAILY INTAKE PER DIET-HEAD OF NUTRIENTS OF 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDIUTRE.

Food expenditure per diet-head weekly	Animal protein gms.	Vegetable protein gms.	Total protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.
Under 10/– ..	19	44	63	54	355	2,150	859	12.8	1,558	274	1,832	1,430	1.5	11	862
10/– — 15/– ..	32	47	79	82	387	2,602	1,050	15.8	2,204	468	2,672	1,655	2.0	14	1,207
15/- — 20/- ..	44	53	97	106	432	3,070	1,246	19.5	3,214	710	3,924	1,966	2.5	17	1,313
Over 20/– ..	61	53	114	142	449	3,530	1,383	23.0	4,120	1,038	5,158	2,138	3.0	20	1,470
All expenditures	32	48	80	81	388	2,601	1,044	16.0	2,317	491	2,808	1,670	2.0	14	1,123

TABLE 16A.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO INCOME.

Income per head weekly	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Under 10/– . .	91	91	70	103	45	146	85	110	129
10/- — 15/- . .	98	99	77	132	66	177	100	111	143
15/- — 20/- . .	111	100	85	135	89	197	110	134	188
20/- — 30/- . .	134	113	114	166	102	211	131	143	197
Over 30/– . .	148	118	123	179	139	217	146	122	210
Income not stated	114	110	94	149	86	191	119	124	219
All incomes . .	119	107	95	149	93	194	120	124	186

TABLE 16B.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Food expenditure per diet-head weekly	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Under 10/– ..	96	93	74	118	61	166	94	102	143
10/- — 15/- ..	118	106	96	146	88	192	119	123	200
15/- — 20/- ..	143	120	121	181	131	227	146	145	218
Over 20/– ..	170	134	143	218	171	252	174	172	245
All expenditures ..	119	107	95	149	93	194	120	124	186

TABLE 16C.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Number in family	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
1 — 2 persons ..	155	117	171	183	107	237	154	149	208
3 — 4 ,, ..	137	108	126	175	110	219	135	133	204
5 — 7 ,, ..	123	108	98	154	101	196	126	127	186
8 — 11 ,, ..	112	105	88	139	86	186	113	119	182
Over 11 ,, ..	114	106	80	142	75	188	109	123	181
All sizes of family ..	119	107	95	149	93	194	120	124	186

TABLE 17.—PERCENTAGE OF TOTAL MEALS EATEN AS "BREAD AND SPREAD" AND AS "COOKED" MEALS BY PERSONS OF VARIOUS AGE GROUPS IN 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Food expenditure per diet-head weekly	Age 3—14 years		Age 15—19 years		Over 20 years	
	Bread and Spread	Cooked	Bread and Spread	Cooked	Bread and Spread	Cooked
Under 10/–	54	30	54	31	55	32
10/- — 15/-	36	45	39	46	39	47
15/- — 20/-	29	54	33	54	33	56
Over 20/–	25	58	26	64	24	62
All expenditures	44	39	42	44	40	47

" Bread and spread " meals mean tea, etc., with bread and butter, margarine, jam or other such spread.
" Cooked " meals mean eggs, bacon, sausages, meat (hot or cold) or vegetables, etc.

TABLE 18.—PERCENTAGE FREQUENCY OF VARIOUS KINDS OF MEALS EATEN BY VARIOUS AGE-GROUPS IN 516 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

Type of Meal	Both sexes 3 to 14 years					Both sexes 15 to 19 years					Both sexes over 20 years				
	Food expenditure per diet-head weekly					Food expenditure per diet-head weekly					Food expenditure per diet-head weekly				
	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	All expenditures	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	All expenditures	Under 10/-	10/- to 15/-	15/- to 20/-	Over 20/-	All expenditures
BREAKFASTS															
Milk drink, or bread and spread with(out) drink	67	36	17	13	47	65	40	25	15	44	66	38	23	12	39
Cereals with(out) bread and spread	12	22	17	17	17	15	14	14	7	14	7	12	7	5	9
Cereals with cooked protein ..	2	6	16	30	7	2	6	11	7	5	2	7	12	20	9
Cooked protein without vegetables	18	35	47	28	28	18	39	50	67	36	24	42	57	57	42
Other Breakfasts	1	1	3	12	1	0	1	0	4	1	1	1	1	6	1
ALL BREAKFASTS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
DINNERS															
Milk drink, or bread and spread with(out) drink	14	1	1	3	7	11	3	1	9	6	15	2	2	3	6
Potato and milk or butter with bread and spread	16	6	1	—	10	14	4	1	—	7	15	5	2	1	8
Cooked protein with(out) vegetables	43	30	24	8	35	44	34	24	21	34	42	35	28	7	31

Cooked protein and vegetables with bread and spread or pudding ..	25	60	73	85	46	28	57	73	69	51	26	56	67	84	54
Other Dinners	2	3	1	4	2	3	2	1	1	2	2	2	1	5	3
ALL DINNERS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
TEAS.															
No meal	4	2	0	—	3	4	2	1	1	3	3	2	0	2	2
Milk drink and bread and spread with(out) drink	78	51	43	16	61	75	47	44	9	54	75	50	44	16	50
Cereals with(out) bread and spread	0	0	0	—	0	—	—	—	—	—	—	0	—	—	0
Potato and milk or butter with bread and spread	3	9	11	6	6	4	12	7	17	9	3	7	7	10	7
Cooked protein with(out) vegetables	11	27	37	58	22	12	27	38	46	25	14	31	38	46	30
Cooked protein and vegetables with bread and spread or pudding ..	2	2	3	14	3	1	5	5	22	4	3	3	6	16	6
Cake	2	7	5	5	4	3	5	3	—	4	2	5	3	4	3
Other Teas	0	2	1	1	1	1	2	2	5	1	0	2	2	6	2
ALL TEAS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SUPPERS.															
No meal	28	24	32	21	27	22	20	12	10	19	21	18	15	12	17
Milk drink and bread and spread with(out) drink	59	57	56	69	58	66	64	66	71	66	65	66	66	66	66
Cereals with(out) bread and spread	9	12	4	6	9	8	10	8	3	8	10	7	8	7	8
Cooked protein with(out) vegetables	1	3	3	2	2	1	3	3	8	3	1	5	6	8	5
Cake	—	2	1	1	1	—	2	2	4	1	—	2	1	2	1
Other Suppers	3	2	4	1	3	3	1	9	4	3	3	2	4	5	3
ALL SUPPERS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

TABLE 19A.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 511 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO INCOME.

	Income per Head Weekly						
	Under 10/–	10/- — 15/-	15/- — 20/-	20/- — 30/-	Over 30/-	Income not stated	All incomes
Number of families*	49	80	79	88	131	84	511
,, ,, persons	381	595	522	512	759	641	3,410
,, ,, rooms	160	287	301	385	660	335	2,128
Rooms per family	3.3	3.6	3.8	4.4	5.0	4.0	4.2
Persons per room	2.4	2.1	1.7	1.3	1.2	1.9	1·6

* Five of the 516 families surveyed gave no return of number of rooms.

TABLE 19B.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 511 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO FOOD EXPENDITURE.

	Food Expenditure per Diet-head Weekly				
	Under 10/–	10/- — 15/-	15/- — 20/-	Over 20/-	All expenditures
Number of families*	164	185	103	59	511
,, ,, persons	1,265	1,252	580	313	3,410
,, ,, rooms	574	792	456	306	2,128
Rooms per family	3.5	4.3	4.4	5.2	4.2
Persons per room	2.2	1.6	1.3	1.0	1.6

* Five of the 516 families surveyed gave no return of number of rooms.

TABLE 19C.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 511 FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

	Number of Persons in Family					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Number of families*	35	108	179	162	27	511
,, ,, persons	71	387	1,107	1,496	349	3,410
,, ,, rooms	125	440	740	706	117	2,128
Rooms per family	3.6	4.1	4.1	4.4	4.3	4.2
Persons per room	0.6	0.9	1.5	2.1	3.0	1.6

* Five of the 516 families surveyed gave no return of number of rooms.

LIST OF "LARGE" AND "SMALL" TOWNS IN WHICH THE SURVEYS WERE CARRIED OUT.

Thirteen Large Towns	Population in 1946	Forty-nine Small Towns	Population in 1946
Dun Laoghaire	44,674	Carlow	7,466
		Balbriggan	2,537
Kilkenny	10,291	Naas	3,774
		Graiguenamanagh	1,064
Dundalk	18,562	Portlaoighise	3,170
		Longford	4,020
Drogheda	15,715	Navan	4,102
		Kells	2,143
Bray	11,085	Tullamore	5,897
		Athlone	8,379
Wexford	12,296	Wicklow	3,183
		Enniscorthy	6,020
Cork	75,595	Ennis	5,871
		Kilkee	1,804
Tralee	9,990	Youghal	4,809
		Fermoy	4,213
Limerick	42,970	Macroom	2,230
		Dunmanway	1,475
Clonmel	9,857	Skibbereen	2,363
		Bandon	2,613
Waterford	28,269	Killarney	5,947
		Listowel	3,311
Galway	20,370	Dingle	1,683
		Abbeyfeale	1,149
Sligo	12,920	Adare	496
		Nenagh	4,516
		Templemore	2,055
		Cashel	3,063
	312,594	Lismore	1,174
		Athenry	1,153
		Clifden	930
		Ballinasloe	5,421
		Tuam	3,868
		Carrick-on-Shannon	1,497
		Castlebar	4,951
		Ballina	6,045
		Belmullet	691
		Claremorris	1,045
		Westport	3,240
		Roscommon	2,038
		Strokestown	617
		Ballymote	765
		Cavan	3,477
		Cootehill	1,565
		Donegal	1,182
		Letterkenny	2,848
		Dungloe	586
		Ballyshannon	2,514
		Monaghan	4,676
			149,636

NATIONAL NUTRITION SURVEY

Part IV

DIETARY SURVEY
OF
FARMING FAMILIES

DUBLIN:
PUBLISHED BY THE STATIONERY OFFICE

To be purchased directly from the
GOVERNMENT PUBLICATIONS SALE OFFICE
3-4 COLLEGE STREET, DUBLIN
or through any Bookseller

(P. No. 9703) **Price One Shilling**

FOREWORD

THIS report is the fourth of a series in which the results of the National Nutrition Survey are being presented. It deals with the dietary surveys carried out in farming families living all over the country. Where any of the methods or classifications used differ from those appearing in earlier reports, the changes are fully described in the text.

An Roinn Sláinte,
Samhain, 1949.

171

NATIONAL NUTRITION SURVEY

DIETARY SURVEY—FARMING FAMILIES.

Scope of Survey.

The present report embodies the results of a dietary survey carried out on families living on farms all over the country. The choice of family depended on whether farming was its main occupation or not. It was necessary to make this distinction because, in many instances, families living on farms derived such a high proportion of their income from other occupations that farming was obviously subsidiary. This point applied most commonly in farms of small acreage ; families living on such farms were only included where farming was the main occupation. The survey began in October, 1946, and ended when the whole survey ended nearly two years later in September, 1948. During March and April, 1947, the continuity of this particular section was interrupted to allow the second survey of the " Congested Districts" (the results of which have already been published) to be completed. Apart from this two-month period, the survey here described ran parallel to that of the large and small towns ; in fact, the sampling of the farming families was so arranged as to make it convenient for the investigators, having completed the survey in a particular large or small town, to proceed immediately to similar surveys on farming families living within a reasonable distance—say five miles—of that town. This method was adopted to allow provision to be made for lodging accommodation for the investigators, but it did introduce the disadvantage that all farming families surveyed were necessarily within a relatively short distance of a centre of population. Families living on farms say ten or fifteen miles from the nearest town were not visited at all. Whether any material difference in the various figures which follow in the tables would have appeared if such families had been visited is open to question, but it is not unreasonable to suggest that differences might have been found because of the ease with which farming families living close to towns could purchase supplies, in comparison with families living at much greater distances from the towns. However, any error introduced by this discrimination would necessarily be small, owing to the nature of the population distribution in Ireland.

The farms were selected in the first instance according to their acreage, an attempt being made to provide a representation of the particular size of farm proportional to the frequency with which such size was found in the particular county. A number of District Electoral Divisions was selected in each county, situated more or less conveniently to the large or small towns already selected for survey in the various counties. In each District Electoral Division, 10 families were selected on a random basis, with the provision that the number of families chosen from those in a particular acreage-group was proportional to the total number in that particular acreage-group in the county, so that the sample examined was fairly representative of the farming families in Ireland as a whole. The farms examined included holdings representative of all acreage-groups from those of under 5 acres to those of 200 acres and over. With each list of 10 names in a particular Division, an alternative list of 10 names was also furnished to the investigators, and where on account of such reasons as refusal to co-operate or inaccessibility of the holding, it was not possible to survey one on the original list, a substitute of the same acreage class was visited. It was originally intended to survey 1,000 farming families, but, even with the provision of substitutes, the final sample numbered 948 families (comprising 4,686 individuals) or roughly 0.37 per cent. of the total number of farmers as returned in the Census of 1936.

Method.

The methods of survey used have been described in detail in the reports already published of the Dublin, Congested Districts, and town surveys, and most of the description in those reports applies precisely to the survey now being considered.

In dealing with rural populations, including those living in the "Congested Districts", certain modifications in technique and in the presentation of the tables had to be introduced. These concerned first the calculation of amounts of foods consumed, in cases where the foods were normally kept in bulk stores. Such foods in rural districts generally were potatoes, vegetables, flour and milk. To arrive at the amounts of such foods used in the course of the survey week, the device was adopted of weighing some homely measure filled with the food—say, a bowl of flour—and keeping an account of the number of such measures used within the survey period. A second modification was introduced to present separately in the tables the amounts of the several foods which were bought and those which were home-grown. In farming families generally, the amounts of the latter are considerable, and as pointed out in the report on the "Congested Districts," it would be unreal, in trying to estimate expenditure on food, to cost these at current local retail prices and to include the resulting amounts as having been expended by the families, when in fact they were not so expended. It has been necessary to make such estimates for the purpose of preparing tables 4A and 4B, where the computed expenditure on food is related to Poor Law valuation and number of persons in family respectively, but an actual classification of the families according to their expenditure on food has been avoided, because such a classification would rest on bases which were not comparable to those used for this purpose in the sections of the survey which deal with Dublin and other towns.

In the previous reports relating to town populations, the families were classified in two ways which were considered to reflect their economic status, namely by income and by food expenditure. In the present case, it has been found quite impossible to estimate farm incomes even to the limited extent of providing a classification which might show the *trends* of income between the various families. An attempt was made to collect data which would enable estimates of farm incomes to be made, but this proved too difficult to be done satisfactorily during a survey of this nature. It was found, in fact, to be a highly technical task.

In order to include any classification of the families which might show their differences in economic status, a classification has been introduced in this report for the first time which is based on the Poor Law valuation of the agricultural land of the farm.

The Poor Law valuation of agricultural land is the amount of money held to represent the net annual value of the particular land with reference to the average prices of the several articles of agricultural produce, due allowance having been made for any peculiar local circumstances in each case. The valuations were fixed under an Act of 1852 and have remained unaltered since then. Thus if land through intensive application of technical knowledge has in the meantime become more productive, or conversely, through neglect has been allowed to become less productive, the original valuation still stands. Furthermore, peculiar local circumstances in 1852 may in the meantime have been profoundly changed by the development say of modern transport, and nevertheless the original value remains. On the whole, however, the Poor Law valuation as originally fixed does still represent the potential wealth of the land, and is considered to form a basis of comparison between the values of different land holdings.

In all the tables which follow, the two classifications used are those according to the Poor Law valuation of the land, and to the number of persons in the family.

Rationed Foods.

Certain foods were rationed during the period covered by the survey, namely, sugar, butter, margarine, flour and bread, and tea. The sugar ration varied between 4 oz. and 12 oz. per head weekly, but stood at the latter figure for more than half the total period. Where sugar beet was grown, by a special arrangement an amount over and above the official ration was available to the grower at the subsidised price, this amount varying (up to a maximum of 56 lb.) with the quantity of beet which the grower delivered to the factory. In addition, extra sugar was available to any household in July, 1948, up to 14 lb., and in the two-month period August and September, 1948, up to 28 lb., for jam-making.

The ration of butter varied between 2 oz. and 6 oz. per head weekly, and that of margarine between 2 oz. and 4 oz. per head weekly during the survey.

The rationing of bread and flour was introduced during January, 1947, the amounts of the ration being fixed at 6 lb. per head weekly of bread, or 4½ lb. of " white " flour or 5 lb. of wheaten flour. Extra rations were made available to agricultural workers, and growers of wheat were entitled to retain for their own use one barrel of wheat (in addition to the ration) per head of the household per annum.

Tea was rationed also, but because of its lack of food value, it entered into the calculations only on the basis of its cost.

Flour Extraction.

The rate of extraction of flour was 90 per cent. up to January, 1947, when the rate was reduced to 85 per cent., at which it remained for the rest of the survey period. Throughout the whole survey period, the milled flour carried a variable admixture of acid calcium phosphate, and in calculating the nutrient values of bread and flour for the tables, the assumption has been made that this fortification was maintained at the average level of 14 oz. per 280 lb. sack throughout.

Reliability of Results.

In the earlier reports published, which presented the results of dietary surveys in Dublin City and in the " Congested Districts", the consumption figures of some foods from the surveys were capable of being checked against known statistics from other sources. Such statistics are, unfortunately, not available as regards rural populations, and therefore the present consumption figures cannot be compared with reliable estimates in this way.

It is, however, possible to use the known amounts of rationed foods for the desired purpose, if only in a limited way. The amounts of the official rations of flour and bread, as well as of butter, cannot be so used because in both these cases certain varying extra amounts were officially available to the farming community, over and above the basic rations, and it is tolerably clear that at no time was it possible for these foods to be strictly rationed in the rural community. Sugar, however, is in somewhat different case, even making allowance for the extra amounts which were available to beet-growers and to persons making home-made jam.

The ration of sugar varied at different times during the earlier part of the survey from 4 oz. to 12 oz. per head weekly and remained at the latter figure from the end of May, 1947, until the end of the survey in September, 1948. The average amount of the official ration over the whole period, however, was 10.8 oz. per head weekly. The calculation involved here has not taken account of the extra quantities of sugar available to beet-growers, or of the special allocations provided to persons who made home-made jam. With these circumstances in mind, it seems likely that the consumption figure of 11.7 oz. found in the survey is sufficiently accurate.

As in previous reports, too, it is suggested that the consistency of the changes in the consumption figures for all foods, as between the various groups of families shown in the tables, in itself suggests reliability.

Tables.

The results of the survey appear in the following tables, which for convenience may be grouped as follows :—

(1) Constitution of sample (Table 1) ;

(2) Consumption of, and expenditure on various foods (Tables 2, 3 and 4) ;

(3) Standards of requirements adopted (Table 5) ;

(4) Intake of nutrients, and the percentage which this intake represents of standard nutrient requirements (Tables 6 and 7).

(5) Types of meals eaten (Tables 8 and 9) ;

(6) Housing conditions (Table 10).

EXPLANATORY NOTES.

In the various tables, the symbol " – " is used to mean none, and " 0.0 " to mean an insignificant amount.

Composition Tables.

Tables 1A and 1B show the composition by ages of the 948 families surveyed, classified according to Poor Law valuation of the land and to the number of persons in the family respectively. The average size of the " farming " family was found to be 4.9 persons, compared with 4.8 persons in Dublin City, 6.3 persons in other large towns, 6.7 persons in small towns, and 4.6 persons in the " Congested Districts." The commonest size of family met with was one consisting of 5, 6 or 7 persons (table 1B) ; families of this size accounted for 38.1 per cent. of the whole sample.

Consumption Tables.

Tables 2A and 2B show the average weekly consumption per diet-head of the various foods by the farming families, when classified according to Poor Law valuation and to the number of persons in the family respectively. In both cases, the last column gives the average consumption of all the families taken together. Thus, the average weekly consumption of milk in all its forms, including milk used for cooking, reached 9.2 pints per diet-head, or practically double the figure of 4.8 pints recorded in the Dublin survey. The consumption of potatoes also reached practically twice the Dublin consumption—162.7 oz. weekly, compared to 82.7 oz. weekly. Other foods whose consumption in the farming families was considerably higher than was recorded in Dublin were vegetables, eggs and fats, while the amount of meat consumed was practically the same in both communities.

The effect of differing degrees of wealth, as represented by Poor Law valuation ot the land per head, is well shown in table 2A, where milk (and fats), meat, vegetables, fruit and eggs all showed a steady increase from the lower to the higher valuations. The effect of the number of persons in the family on consumption of the various foods is shown in table 2B, but here the trend of the figures is, in general, much less regular than in table 2A, probably for the reason suggested in an earlier report that where the family was large, more than one member was earning and subscribing to the family income. Even so, the figures of consumption ot meat and of flour and bread showed a steady reduction as the number of persons in the family increased.

In table 3, the consumption of the various foods is shown separately instead of in groups as in table 2. No points deserving of special mention arise, except that accurate comparisons between the two tables can only be made in a few cases, such as potatoes, eggs and sugar.

Expenditure Tables.

The quantities of foods given in table 2 are expressed in terms of money in table 4, and the same classifications are used in both tables. Table 4 is open to the objection that where such large proportions of certain foods are home-produced (milk, potatoes, eggs and vegetables), it creates a somewhat false impression to state the cost of these as if such cost represented expenditure of cash by the families. None the less, the figures do show what the amounts of foods consumed would have cost at the current prices ruling locally.

Subject to this, table 4A shows a steadily rising expenditure from one group of families to another as the valuation (representing the potential wealth) of the land increases. A small point arises here in connection with milk. Between the two groups of families with the lowest valuations, the quantities of "milk" consumed (table 2A) show a difference of over two pints, whereas in table 4A the cost of this item appears at the same figure in both groups. Two possible explanations of this apparent discrepancy are: (1) since the survey lasted for almost two years, an undue number of the families with the higher consumption was examined at seasons when milk was plentiful and cheap; and, more probably, (2) since "milk" in this context includes whole milk, condensed milk, dried milk, buttermilk and skimmed milk, all of which differ widely in price, a higher proportion of the cheaper items was included in the group with the higher consumption, so that while the quantity increased, the cost did not. Eggs, fats, meat, vegetables and fruit all show this steadily rising expenditure clearly.

In table 4B, where the classification of the families is made according to the number of persons in the family, a similar trend of the figures is shown, though less markedly.

It is of interest to note the proportions of the total expenditure which have been ascribed to certain foods. Meat accounted for the highest expenditure at 28 per cent. of the total, the same figure as was found in Dublin and other large towns. Expenditure on milk accounted for 13 per cent. of the total, while eggs, and bread and flour both accounted for 10 per cent.

Intake and Requirement Tables.

The consumption of foods shown in table 2 is reproduced in table 6 in terms of nutrients. This table has to be produced as a step towards the calculation of table 7, which shows the result of a comparison between the actual intake and the requirements of any group of families, the requirements being estimated according to the standards shown in table 5. Attention may be directed in table 6 to the high level of the average intake of calories. In farming families, this figure stood at 3,516 calories per diet-head per day, as compared with figures of just over 2,600 in Dublin and other towns. A further point of interest concerns the intake of protein. In Dublin the total intake of protein per diet-head per day was about 87 gm., of which 37 gm. were animal protein : in other towns the total protein intake was a little less, and the animal protein fraction was 30 gm. or slightly over. In farming families the intake of total protein was 111 gm., of which the animal protein accounted for 49 gm.

The *adequacy* of the diets in terms of the selected standards is seen in table 7, where intake has been expressed as a percentage of the estimated requirement. The first point of interest in table 7A is that in none of the valuation classes does the percentage of any of the nutrients considered fall as low as 100. In every case except vitamin C, the percentage of estimated requirements attained by the families rises steadily with increasing valuation of the land per head.

It might have been expected from the intake shown in table 6 that the estimated requirement of calories would have been much lower than the intake, and that when the latter was expressed as a percentage of the former, the resulting figure would be very high. But a large percentage of the farming community was engaged in heavy manual work, entailing a high requirement of calories (table 5), and consequently the figures in table 7, though satisfactory, are not unduly high.

When protein is considered, the position is somewhat different, because the standard taken for this nutrient (table 5) is the same for adults whether heavy manual work is being done or not, and so the high intake figures of table 6 appear as high " percentage of requirement " figures in table 7.

The requirement of calcium was amply met in all groups, and the average for the whole farming community of 177 per cent. is a highly satisfactory figure. The high level of calcium intake depended upon the large consumption of milk shown in table 2. The possible effect of hard water in supplementing the intake of calcium from food has not been provided for in the calculations.

Intake of vitamin A was above the estimated requirement in all groups ; in the lowest valuation group, the figure of 103 per cent. of requirements probably hides some families in which the intake fell short of 100 per cent., but this is not considered significant.

Intakes of iron and vitamin B_1 were high, reflecting in part the large consumption of high extraction bread and flour, and of meat.

Riboflavin, derived principally from eggs and dairy produce and meat, especially liver, showed a high intake in all groups, and the requirement of the whole sample together was met to the extent of 180 per cent.

Only slightly lower was the figure for niacin, derived, like iron and vitamin B_1, largely from meat and from high extraction bread.

Vitamin C requirements were met in the whole sample to the extent of nearly 300 per cent., and the lowest intake recorded in any group of families was 239 per cent. of estimated requirements, which was the figure met with in families consisting of more than 11 persons. The principal sources of this vitamin in ordinary diets are fruit and vegetables, including potatoes.

Meals Tables.

Table 8 shows the percentages of all meals eaten which were of the simple " bread and spread " type as compared with " cooked " meals. The families are classified according to Poor Law valuation per head, and are divided into three groups by ages, namely, children aged 3 to 14 years, adolescents aged 15 to 19 years, and adults over this age. In point of fact, no great difference is discernible between these three groups, except that the younger children tended to take cooked meals somewhat less frequently than older persons, and "bread and spread " meals slightly more frequently. The meals considered are not exhaustive, since certain types of meal were not counted at all. As valuation per head increased, the frequency of " bread and spread " meals decreased, while that of " cooked " meals increased, but the limits of increase or decrease were not very wide in any age-group, and were narrower than those calculated in other groups of the population, as shown in reports published earlier (Dublin, and Large and Small Towns).

In table 9, the prevailing food habits of the farming families are represented. The classification adopted is that according to Poor Law valuation of the land per head, and the families have been subdivided according to age into the three age-groups shown in the table, or roughly children, adolescents and adults.

Breakfast : Much the commonest breakfast taken by persons in all three age-groups consisted of cooked protein, and this became somewhat more frequent with increasing age, reaching 61 per cent. of all breakfasts in adults (46 per cent. and 58 per cent. in children and adolescents respectively). The next commonest breakfast was of the simple milk drink or "bread and spread" variety, the percentage frequencies of which were 30 per cent. in children, 26 per cent. in adolescents, and 23 per cent. in adults. Generally, too, these two types of breakfast varied fairly consistently with the " valuation per head " of the land, the cooked breakfast becoming more frequent, and the simpler meal less frequent, as valuation increased.

Dinner : At all ages, the commonest dinner was one of cooked protein and vegetables, with " bread and spread " (say tea with bread and butter) or pudding. Slightly less common was a dinner of cooked protein and vegetables alone. A dinner consisting of potatoes and milk or butter, with or without "bread and spread", was fairly frequent in children (15 per cent.), decreasing somewhat in older persons. This last type was a fairly common dinner in rural areas generally, and in the farming families now being considered, varied inversely with economic status as portrayed by the valuation. It will be recalled that in the "Congested Districts" this kind of dinner was taken by as many as between 20 and 30 per cent. of the whole sample, whereas in small towns its frequency fell below 10 per cent., and in large towns became quite insignificant.

Tea: At tea, the commonest meal was one of the simple "bread and spread" type, say tea with bread or toast with butter and perhaps jam. The only other meal at all common was the cooked protein meal, consisting say, of egg or bacon. These two varied roughly in frequency with the valuation, the simpler meal being replaced slightly by the cooked meal as valuation increased. About two-thirds of all teas were of the simple type and about one fifth of the cooked variety. Other kinds of tea were insignificant.

Supper: The commonest supper, taken by about half the total sample, was the simple "bread and spread" meal, consisting in this case probably of tea or milk with bread and butter or biscuits. A supper of cereals —such as porridge—was much commoner at about 25 per cent. than in towns, and it is of interest that this kind of supper occurred in the "Congested Districts" with about the same frequency.

Housing.

Tables 10A and 10B show certain housing conditions which existed in the families surveyed. Thus in all the families, overcrowding to the extent of more than 2 persons per room was found only in families of more than 11 persons, and even in the farms of the lowest valuations (under £2 per head) only 1.5 persons per room were met with. This is in keeping with what one would expect to find in rural communities, namely, that overcrowding is less there than amongst those who live in towns.

SUMMARY.

1. A food survey was made during the period October, 1946, to September, 1948, of 948 families living on farms all over Ireland. The number of persons involved was 4,686.

2. The consumption of milk, meat, eggs, vegetables and fruit increased consistently with increasing valuation per head of the holding of land. Consumption of bread and flour, and of potatoes, did not show wide differences between the families grouped according to valuation. Consumption of cheese was negligible throughout. The consumption of milk at 9.2 pints per diet-head weekly was much higher than elsewhere (except in the "Congested Districts" in autumn), as was also that of eggs. At the same time, the amount of meat consumed was the same as in Dublin, while potatoes were taken in double the quantity found in Dublin. In general, there was no group of foods whose consumption by farming families showed a reduction on the Dublin figures which would offset the higher consumption on farms of milk, eggs, potatoes and vegetables.

3. The intake of calories and of all the nutrients reached very satisfactory levels, even in those groups of the farming community living on the smallest and least wealthy holdings.

4. About one third of all meals taken consisted of simple meals of the tea and bread and butter type ; about one half of all meals were cooked. The simpler meal was commoner in the poorer families, and became less frequent with increasing valuation per head, while the reverse was true of the cooked meal.

5. On the whole, the diets were found to be excellent.

6. The housing conditions of the families as regards overcrowding were found to be good. Even in the lowest valuation per head groups, overcrowding was not met with, and only where the families were very large (over 11 persons) were more than 2 persons per room encountered.

TABLE 1A.—AVERAGE COMPOSITION OF 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO POOR LAW VALUATION OF LAND.

Family Composition	Poor Law valuation of land per head				
	Under £2	£2 and under £4	£4 and under £8	£8 and over	All valuations
Total number of families	277	238	216	217	948
Total number of persons	1,569	1,136	947	1,034	4,686
Total number of diet-heads	1,565.5	1,137.8	950.8	1,050.1	4,704.2
Children 0—14 per family	1.8	1.2	0.8	0.7	1.1
Children 15—16 per family	0.2	0.2	0.1	0.1	0.2
Other persons per family	3.7	3.4	3.5	4.0	3.6
Total persons per family	5.7	4.8	4.4	4.8	4.9
Percentage distribution of families ..	29.2	25.1	22.8	22.9	100

TABLE 1B.—AVERAGE COMPOSITION OF 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

FAMILY COMPOSITION	NUMBER OF PERSONS IN FAMILY					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Total number of families ..	137	327	361	106	17	948
Total number of persons ..	273	1,145	2,101	941	226	4,686
Total number of diet-heads ..	282.1	1,165.5	2,097.7	936.8	222.1	4,704.2
Children 0—14 per family ..	0.0	0.3	1.4	3.7	6.1	1.1
Children 15–16 per family ..	—	0.1	0.2	0.4	0.8	0.2
Other persons per family ..	2.0	3.1	4.2	4.8	6.4	3.6
Total persons per family ..	2.0	3.5	5.8	8.9	13.3	4.9
Percentage distribution of families	14.4	34.5	38.1	11.2	1.8	100

TABLE 2A.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO POOR LAW VALUATION OF LAND.

Commodity Group	Unit of Quantity	Poor Law valuation of land per head														
		Under £2			£2 and under £4			£4 and under £8			£8 and over			All valuations		
		Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**
Milk (*a*)	Pints	0.7	7.2	**7.9**	0.5	8.8	**9.3**	0.3	9.7	**10.0**	0.2	10.4	**10.6**	0.4	8.8	**9.2**
Cheese ..	oz.	0.5	—	**0.5**	0.5	—	**0.5**	0.9	—	**0.9**	0.6	—	**0.6**	0.6	—	**0.6**
Eggs ..	Number	0.4	4.8	**5.2**	0.5	6.0	**6.5**	0.2	6.7	**6.9**	0.2	7.2	**7.4**	0.4	6.0	**6.4**
Fats (*b*) ..	oz.	6.9	2.9	**9.8**	6.4	5.6	**12.0**	6.2	7.8	**14.0**	6.7	8.1	**14.8**	6.6	5.7	**12.3**
Meat (*c*) ..	,,	18.4	4.4	**22.8**	21.5	8.0	**29.5**	26.3	13.5	**39.8**	30.0	17.5	**47.5**	23.3	10.1	**33.4**
Fish ..	,	2.7	0.5	**3.2**	2.2	0.2	**2.4**	2.7	1.1	**3.8**	3.0	0.1	**3.1**	2.6	0.5	**3.1**
Flour and Bread (*d*) ..	,,	87.2	4.1	**91.3**	88.8	3.4	**92.2**	92.7	7.5	**100.2**	89.2	9.0	**98.2**	89.1	5.7	**94.8**
Other Cereals	,,	9.2	0.7	**9.9**	11.0	2.2	**13.2**	9.4	2.5	**11.9**	10.6	2.6	**13.2**	10.0	1.8	**11.8**
Potatoes, including Chips	,,	11.2	139.2	**150.4**	5.4	166.5	**171.9**	4.3	162.9	**167.2**	2.6	164.3	**166.9**	6.5	156.2	**162.7**
Vegetables ..	,,	3.5	24.8	**28.3**	3.3	30.9	**34.2**	3.2	42.3	**45.5**	4.3	45.0	**49.3**	3.6	34.3	**37.9**
Fruit and Fruit Products ..	,,	2.7	1.0	**3.7**	3.1	2.4	**5.5**	4.1	4.2	**8.3**	4.7	5.5	**10.2**	3.5	3.0	**6.5**
Sugar ..	,,	11.3	—	**11.3**	11.9	—	**11.9**	12.0	—	**12.0**	11.7	—	**11.7**	11.6	—	**11.6**
Preserves ..	,,	4.1	0.0	**4.1**	4.6	0.0	**4.6**	4.6	0.2	**4.8**	5.5	0.2	**5.7**	4.6	0.1	**4.7**
Miscellaneous (*e*)		0.3	0.1	**0.4**	0.3	0.0	**0.3**	0.3	0.0	**0.3**	0.4	0.0	**0.4**	0.3	0.0	**0.3**

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 2B.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

COMMODITY GROUP	Unit of Quantity	NUMBER OF PERSONS IN FAMILY																	
		1 or 2 persons			3 or 4 persons			5, 6 or 7 persons			8, 9, 10 or 11 persons			Over 11 persons			All sizes of family		
		Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**
Milk (*a*) ..	Pints	0.9	9.7	**10.6**	0.5	9.3	**9.8**	0.5	8.7	**9.2**	0.2	8.2	**8.4**	0.4	9.0	**9.4**	0.4	8.8	**9.2**
Cheese ..	oz.	0.9	—	**0.9**	0.8	—	**0.8**	0.6	—	**0.6**	0.4	—	**0.4**	0.4	—	**0.4**	0.6	—	**0.6**
Eggs ..	Number	0.3	6.5	**6.8**	0.2	6.8	**7.0**	0.3	6.1	**6.4**	0.6	5.1	**5.7**	0.9	4.2	**5.1**	0.4	6.0	**6.4**
Fats (*b*) ..	oz.	7.7	6.0	**13.7**	6.9	5.9	**12.8**	6.5	6.3	**12.8**	6.0	4.4	**10.4**	7.1	4.2	**11.3**	6.6	5.7	**12.3**
Meat (*c*) ..	,,	32.2	6.8	**39.0**	25.4	11.6	**37.0**	23.5	10.7	**34.2**	19.2	8.2	**27.4**	16.6	8.1	**24.7**	23.3	10.1	**33.4**
Fish ..	,,	3.3	—	**3.3**	3.1	0.1	**3.2**	2.7	0.7	**3.4**	2.1	0.5	**2.6**	1.2	0.2	**1.4**	2.6	0.5	**3.1**
Flour and Bread (*d*) ..	,,	101.5	2.4	**103.9**	94.8	6.1	**100.9**	87.9	6.3	**94.2**	84.2	5.5	**89.7**	75.9	3.6	**79.5**	89.1	5.7	**94.8**
Other Cereals	,,	12.5	1.3	**13.8**	18.5	2.2	**20.7**	9.4	2.1	**11.5**	8.1	1.4	**9.5**	10.2	0.1	**10.3**	10.0	1.8	**11.8**
Potatoes, including Chips	,,	7.8	152.6	**160.4**	4.8	148.0	**152.8**	6.2	162.9	**169.1**	6.6	157.9	**164.5**	16.1	132.0	**148.1**	6.5	156.2	**162.7**
Vegetables ..	,,	4.5	30.0	**34.5**	4.9	37.0	**41.9**	3.0	35.9	**38.9**	3.4	31.1	**34.5**	1.6	24.6	**26.2**	3.6	34.3	**37.9**
Fruit and Fruit Products ..	,,	3.6	2.9	**6.5**	3.7	2.5	**6.2**	3.5	3.6	**7.1**	3.3	2.5	**5.8**	3.7	1.9	**5.6**	3.5	3.0	**6.5**
Sugar ..	,,	13.9	—	**13.9**	12.0	—	**12.0**	11.4	—	**11.4**	11.3	—	**11.3**	10.7	—	**10.7**	11.6	—	**11.6**
Preserves ..	,,	6.3	0.0	**6.3**	5.5	0.1	**5.6**	4.4	0.1	**4.5**	3.6	0.1	**3.7**	4.7	0.1	**4.8**	4.6	0.1	**4.7**
Miscellaneous(*e*)	,,	0.4	0.4	**0.8**	0.4	—	**0.4**	0.2	—	**0.2**	0.4	—	**0.4**	0.1	—	**0.1**	0.3	0.0	**0.3**

(a) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 3.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 948 FARMING FAMILIES.

COMMODITY	Unit of Quantity	Bought and Free	Home Won	Total
Butter	Oz.	5.4	5.7	11.1
Margarine	,,	0.8	—	0.8
Other fats	,,	0.4	0.0	0.4
Sugar	,,	11.6	—	11.6
Preserves	,,	4.5	0.1	4.6
Syrup and treacle	,,	0.1	—	0.1
Milk liquid, milk whole condensed, and milk whole dried . .	Pints	0.2	6.9	7.1
Skimmed milk and buttermilk and skimmed condensed milk	,,	0.2	1.9	2.1
Cheese	Oz.	0.6	—	0.6
Eggs	Number	0.4	6.0	6.4
Beef and veal	Oz.	11.6	0.1	11.7
Mutton and lamb	,,	3.0	0.0	3.0
Pork	,,	0.4	0.1	0.5
Corned beef, mutton or pork	,,	0.9	0.0	0.9
Bacon	,,	3.5	7.1	10.6
Liver, sheep	,,	0.1	—	0.1
Liver, other	,,	0.1	0.0	0.1
Other offals	,,	0.5	2.7	3.2
Cooked and canned meat . .	,,	0.4	0.0	0.4
Sausages uncooked	,,	2.2	—	2.2
Other meat products . .	,,	0.6	0.0	0.6
White fish	,,	0.6	0.1	0.7
White fish, processed . .	,,	0.2	—	0.2
Fat fish, fresh	,,	1.5	0.3	1.8
Fat fish, processed	,,	0.3	0.0	0.3
Fish canned	,,	0.1	—	0.1
Potatoes, unpeeled, peeled and chips	,,	6.5	156.2	162.7
Carrots	,,	0.2	1.4	1.6
Other roots	,,	0.4	9.8	10.2
Green vegetables	,,	1.0	21.3	22.3
Miscellaneous vegetables . .	,,	1.4	1.6	3.0
Legumes, fresh	,,	0.1	0.2	0.3
Pulses, dried	,,	0.4	0.0	0.4
Pulses, canned	,,	0.3	—	0.3
Tomatoes	,,	1.2	0.0	1.2
Citrus fruits	,,	0.4	—	0.4
Other fruit	,,	0.9	3.0	3.9
Bottled and canned fruit . .	,,	0.1	0.0	0.1
Dried vine fruit	,,	0.8	—	0.8
Other dried fruit . .	,,	0.1	—	0.1
Flour	,,	55.3	0.2	55.5
Wholemeal	,,	3.3	4.9	8.2
Maize meal	,,	1.8	—	1.8
Bread	,,	37.2	1.0	38.2
Biscuits (including wafers, excluding oatmeal biscuits) . .	,,	0.9	0.0	0.9
Cakes	,,	0.7	0.0	0.7
Puddings	,,	0.0	—	0.0
Oatmeal and oat products . .	,,	7.0	1.8	8.8
Breakfast cereals	,,	0.2	—	0.2
Cereals (rice and barley) . .	,,	0.1	—	0.1
Cereals (flour base) . .	,,	0.2	—	0.2
Other cereals	,,	0.9	—	0.9
Cocoa and cocoa-based drinks . .	,,	0.2	0.0	0.2

TABLE 4A.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO POOR LAW VALUATION OF LAND.

COMMODITY GROUP	POOR LAW VALUATION OF LAND PER HEAD														
	Under £2			£2 and under £4			£4 and under £8			£8 and over			All valuations		
	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Home Won	**Total**
	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**
Milk	2	1 9	**1 11**	1	1 10	**1 11**	1	2 5	**2 6**	0	2 7	**2 7**	1	2 2	**2 3**
Cheese	1	—	**1**	1	—	**1**	1	—	**1**	1	—	**1**	1	—	**1**
Eggs	2	1 4	**1 6**	2	1 8	**1 10**	1	1 11	**2 0**	1	2 1	**2 2**	1	1 8	**1 9**
Fats (*a*) ..	1 0	6	**1 6**	1 0	11	**1 11**	11	1 4	**2 3**	1 0	1 4	**2 4**	1 0	1 0	**2 0**
Meat (*b*)	2 4	8	**3 0**	2 8	1 4	**4 0**	3 6	2 3	**5 9**	4 0	2 11	**6 11**	3 1	1 8	**4 9**
Fish	2	0	**2**	2	0	**2**	3	0	**3**	3	0	**3**	2	0	**2**
Flour and Bread	1 6	1	**1 7**	1 7	1	**1 8**	1 9	2	**1 11**	1 8	2	**1 10**	1 7	1	**1 8**
Other Cereals ..	5	0	**5**	6	1	**7**	7	1	**8**	9	10	**1 7**	7	1	**8**
Potatoes, including Chips ..	1	1 3	**1 4**	1	1 6	**1 7**	1	1 7	**1 8**	0	1 7	**1 7**	1	1 5	**1 6**
Vegetables ..	1	4	**5**	1	6	**7**	1	7	**8**	2	8	**10**	1	6	**7**
Fruit and Fruit Products ..	2	1	**3**	3	1	**4**	4	2	**6**	4	3	**7**	3	1	**4**
Sugar	3	—	**3**	4	—	**4**	4	—	**4**	4	—	**4**	4	—	**4**
Preserves ..	4	0	**4**	5	0	**5**	5	0	**5**	5	2	**7**	5	0	**5**
Miscellaneous (*c*) ..	6	0	**6**	6	0	**6**	6	0	**6**	7	0	**7**	6	0	**6**
Total expenditure	7 3	6 0	**13 3**	7 11	8 0	**15 11**	9 0	10 6	**19 6**	9 8	12 7	**22 3**	8 4	8 8	**17 0**

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 4B.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Commodity Group	Number of persons in family																	
	1 or 2 persons			3 or 4 persons			5, 6 or 7 persons			8, 9, 10 or 11 persons			Over 11 persons			All sizes of family		
	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Home Won	**Total**
	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**
Milk ..	2	2 5	**2 7**	1	2 3	**2 4**	1	2 1	**2 2**	1	2 0	**2 1**	1	2 2	**2 3**	1	2 2	**2 3**
Cheese ..	1	—	**1**	1	—	**1**	1	—	**1**	1	—	**1**	1	—	**1**	1	—	**1**
Eggs ..	1	1 10	**1 11**	1	1 11	**2 0**	1	1 8	**1 9**	2	1 5	**1 7**	2	1 2	**1 4**	1	1 8	**1 9**
Fats (*a*) ..	1 1	1 0	**2 1**	1 1	1 0	**2 1**	1 0	1 1	**2 1**	11	9	**1 8**	1 1	8	**1 9**	1 0	1 0	**2 0**
Meat (*b*) ..	4 1	1 1	**5 2**	3 4	1 11	**5 3**	3 1	1 9	**4 10**	2 6	1 4	**3 10**	2 2	1 5	**3 7**	3 1	1 8	**4 9**
Fish ..	3	0	**3**	3	0	**3**	2	0	**2**	2	1	**3**	1	0	**1**	2	0	**2**
Flour and Bread	1 11	1	**2 0**	1 8	1	**1 9**	1 7	1	**1 8**	1 6	1	**1 7**	1 4	1	**1 5**	1 7	1	**1 8**
Other Cereals	8	1	**9**	8	1	**9**	6	1	**7**	6	1	**7**	6	0	**6**	7	1	**8**
Potatoes, including Chips ..	1	1 5	**1 6**	1	1 5	**1 6**	1	1 6	**1 7**	1	1 5	**1 6**	1	1 3	**1 4**	1	1 5	**1 6**
Vegetables ..	2	6	**8**	2	7	**9**	1	6	**7**	1	5	**6**	1	5	**6**	1	6	**7**
Fruit and Fruit Products ..	3	1	**4**	3	1	**4**	3	2	**5**	3	1	**4**	3	1	**4**	3	1	**4**
Sugar ..	5	—	**5**	3	—	**3**	3	—	**3**	3	—	**3**	3	—	**3**	4	—	**4**
Preserves ..	7	0	**7**	5	0	**5**	4	0	**4**	4	0	**4**	5	0	**5**	5	0	**5**
Miscellaneous (*c*)	8	0	**8**	7	0	**7**	6	0	**6**	5	0	**5**	5	0	**5**	6	0	**6**
Total expenditure	10 6	8 6	**19 0**	9 0	9 4	**18 4**	8 1	8 11	**17 0**	7 4	7 8	**15 0**	7 0	7 3	**14 3**	8 4	8 8	**17 0**

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, cocoa, coffee, sauces, patent drinks and foods, etc.

TABLE 5.—RECOMMENDED DAILY REQUIREMENTS OF NUTRIENTS PER HEAD (LEAGUE OF NATIONS TECHNICAL COMMISSION).

Age in Years	Under 1 year	1-3 years	4–7 years	8–12 years	13–15 years	16–17 years	18–21 years	Males			Females		
								Sedentary work	Medium work	Heavy work	Sedentary work	Medium work	Pregnant or Lactating
Calories ..	800	1,100	1,500	2,100	2,900	3,000	3,000	2,500	3,000	4,500	2,500	3000	3,000
Protein gms. ..	20	42	50	65	95	100	90	70	70	70	60	60	80
Calcium gms. ..	0.4	1.1	1.3	1.4	1.5	1.4	1.1	0.8	0.8	0.8	0.8	0.8	1.5
Iron mgms. ..	3.0	5.0	8.0	13.0	16.0	15.0	13.0	10.0	10.0	10.0	10.0	10.0	13.0
Vitamin A i.u. ..	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	5,000
Vitamin B_1 μgms.	360	495	675	945	1,305	900	900	900	900	900	750	750	1,800
(*a*) Riboflavin mgms.	0.6	0.9	1.1	1.6	2.1	2.3	2.4	1.9	1.9	1.9	1.5	1.5	3.0
(*a*) Niacin mgms. ..	4	6	7	11	14	16	16	13	13	13	11	11	23
(*b*) Vitamin C i.u. ..	600	600	600	600	600	600	600	600	600	600	600	600	900

(*a*) Recommendations in respect of riboflavin and niacin taken from National Research Council's (U.S.A.) scale.
(*b*) 20 i.u. Vitamin C=1 mgm.

TABLE 6.—DAILY INTAKE OF NUTRIENTS PER DIET-HEAD IN 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO POOR LAW VALUATION OF LAND.

POOR LAW VALUATION OF LAND PER HEAD	Animal protein gms.	Vegetable protein gms.	Total protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.*
Under £2 ..	39	58	97	92	468	3,093	1,541	19.2	2,703	424	3,127	2,154	2.6	17	1,533
£2 and under £4 ..	47	62	109	114	501	3,464	1,712	21.1	3,289	577	3,866	2,405	3.0	18	1,751
£4 and under £8	55	66	121	136	522	3,798	1,824	23.2	3,713	579	4,292	2,604	3.3	21	2,062
£8 and over ..	61	66	127	149	524	3,946	1,834	24.5	3,982	843	4,825	2,681	3.5	21	1,952
All valuations ..	49	62	111	119	499	3,516	1,705	21.6	3,334	586	3,920	2,423	3.1	19	1,786

* 20 i.u. Vitamin C = 1 mgm.

TABLE 7A.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO POOR LAW VALUATION OF LAND.

POOR LAW VALUATION OF LAND PER HEAD	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Under £2 ..	146	111	152	183	103	253	157	143	254
£2 and under £4 ..	164	120	177	203	128	284	180	157	291
£4 and under £8 ..	181	127	196	225	142	308	194	174	342
£8 and over ..	187	128	200	233	161	315	202	181	325
All valuations ..	167	120	177	207	130	285	180	161	296

TABLE 7B.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

NUMBER IN FAMILY	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
1 or 2 persons	188	118	231	235	144	307	196	172	303
3 or 4 persons	177	117	209	222	136	298	185	162	292
5, 6 or 7 persons	167	122	174	208	135	289	180	163	298
8, 9, 10 or 11 persons	154	121	146	190	109	267	172	157	309
Over 11 persons ..	142	123	142	162	118	244	167	137	239
All sizes of family ..	167	120	177	207	130	285	180	161	296

TABLE 8.—PERCENTAGE OF TOTAL MEALS EATEN AS " BREAD AND SPREAD " AND AS " COOKED " MEALS BY PERSONS OF VARIOUS AGE-GROUPS IN 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO POOR LAW VALUATION OF LAND.

POOR LAW VALUATION OF LAND PER HEAD	Age 3—14 years		Age 15—19 years		Age over 20 years	
	Bread and Spread	Cooked	Bread and Spread	Cooked	Bread and Spread	Cooked
Under £2	43	42	40	45	40	45
£2 and under £4	35	46	34	49	36	49
£4 and under £8	29	52	31	56	34	52
£8 and over	31	50	31	56	28	56
All valuations	37	46	35	50	35	50

" Bread and Spread " meals mean tea, etc., with bread and butter, margarine, jam or other such spread.
" Cooked " meals mean eggs, bacon, sausages, meat (hot or cold) or vegetables.

TABLE 9.—PERCENTAGE FREQUENCY OF VARIOUS KINDS OF MEALS EATEN BY VARIOUS AGE-GROUPS IN 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO POOR LAW VALUATION OF LAND.

TYPE OF MEAL	Both Sexes 3 to 14 years					Both Sexes 15 to 19 years					Both Sexes over 20 years				
	Poor law valuation of land per head					Poor law valuation of land per head					Poor law valuation of land per head				
	Under £2	£2 and under £4	£4 and under £8	£8 and over	**All valuations**	Under £2	£2 and under £4	£4 and under £8	£8 and over	**All valuations**	Under £2	£2 and under £4	£4 and under £8	£8 and over	**All valuations**
BREAKFASTS															
Milk drink, or bread and spread with(out) drink	41	25	12	21	**30**	37	28	15	16	**26**	33	24	20	13	**23**
Cereals with(out) bread and spread	10	10	10	13	**10**	4	3	5	8	**5**	5	6	6	9	**6**
Cereals with cooked protein ..	10	14	18	18	**13**	8	6	12	16	**10**	5	7	9	15	**9**
Cooked protein without vegetables	38	50	60	47	**46**	50	62	68	60	**58**	57	62	64	62	**61**
Other Breakfasts	1	1	0	1	**1**	1	1	0	-	**1**	0	1	1	1	**1**
ALL BREAKFASTS	100	100	100	100	**100**	100	100	100	100	**100**	100	100	100	100	**100**
DINNERS															
Milk drink, or bread and spread with(out) drink	6	1	2	1	**4**	5	2	5	0	**3**	5	4	3	1	**3**
Potato and milk or butter with(out) bread and spread	21	12	7	5	**15**	17	10	7	2	**11**	18	11	7	2	**10**
Cooked protein with(out) vegetables	38	38	35	19	**35**	44	45	34	20	**37**	43	43	39	23	**37**

Cooked protein and vegetables with bread and spread or pudding	32	46	54	74	**44**	31	42	52	77	**47**	32	41	50	72	**48**
Other Dinners	3	3	2	1	**2**	3	1	2	1	**2**	2	1	1	2	**2**
ALL DINNERS	100	100	100	100	**100**	100	100	100	100	**100**	100	100	100	100	**100**
TEAS															
No meal	1	2	1	5	**2**	1	1	0	1	**1**	1	2	1	1	**1**
Milk drink, or bread and spread with(out) drink	71	64	63	55	**66**	69	61	48	52	**60**	69	66	62	49	**62**
Potato and milk or butter with(out) bread and spread	7	4	6	10	**6**	5	2	12	10	**6**	5	3	5	6	**5**
Cooked protein with(out) vegetables	13	15	15	16	**14**	18	25	23	25	**22**	19	19	21	30	**22**
Cooked protein and vegetables with bread and spread or pudding ..	3	3	4	2	**3**	2	3	9	1	**3**	2	4	2	2	**2**
Cake	3	5	8	7	**5**	3	6	7	9	**6**	2	3	6	8	**5**
Other Teas	2	7	3	5	**4**	2	2	1	2	**2**	2	3	3	4	**3**
ALL TEAS	100	100	100	100	**100**	100	100	100	100	**100**	100	100	100	100	**100**
SUPPERS															
No meal	10	9	22	19	**12**	7	3	3	9	**6**	7	9	10	16	**10**
Milk drink, or bread and spread with(out) drink	52	50	39	48	**49**	50	44	57	56	**51**	53	50	51	48	**51**
Cereals with(out) bread and spread	28	34	19	15	**27**	29	44	18	12	**27**	27	31	20	17	**24**
Cooked protein with(out) vegetables	5	3	9	11	**6**	7	4	8	13	**8**	6	6	11	11	**8**
Cake	1	2	2	2	**1**	0	3	4	7	**3**	1	1	2	3	**2**
Other Suppers	4	2	9	5	**5**	7	2	10	3	**5**	6	3	6	5	**5**
ALL SUPPERS	100	100	100	100	**100**	100	100	100	100	**100**	100	100	100	100	**100**

TABLE 10A.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO POOR LAW VALUATION OF LAND.

	Poor Law valuation of land per head				
	Under £2	£2 and under £4	£4 and under £8	£8 and over	All valuations
Number of families ..	277	238	216	217	948
Number of persons	1,569	1,136	947	1,034	4,686
Number of rooms	1,047	980	1,026	1,410	4,463
Rooms per family	3.8	4.1	4.8	6.5	4.7
Persons per room	1.5	1.2	0.9	0.7	1.0

TABLE 10B.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 948 FARMING FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

	Number of persons in family					
	1 or 2 persons	3 or 4 persons	5 ,6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Number of families	137	327	361	106	17	948
Number of persons	273	1,145	2,101	941	226	4,686
Number of rooms	500	1,496	1,781	580	106	4,463
Rooms per family	3.6	4.6	4.9	5.5	6.2	4.7
Persons per room	0.5	0.8	1.2	1.6	2.1	1.0

(861).H6241.Wt.3272/1447.3.1000.2/50.W.P.W.Ltd.2.

NATIONAL NUTRITION SURVEY

Part V

DIETARY SURVEY
OF
FARM WORKERS' FAMILIES

DUBLIN:
PUBLISHED BY THE STATIONERY OFFICE

To be purchased directly from the
GOVERNMENT PUBLICATIONS SALE OFFICE
3-4 COLLEGE STREET, DUBLIN
or through any Bookseller

(P. No. 9903) **Price One Shilling**

FOREWORD

This is the fifth report of a series in which the results of the National Nutrition Survey are being presented. The tables show the results of dietary surveys carried out all over the country in the families of farm workers. The methods used are described in sufficient detail to permit of the full understanding of the tables now presented—a complete description was published earlier in the report dealing with Dublin City.

With the publication of this report, all the sections of the population originally intended to be surveyed will have been dealt with. Throughout the survey, however, records were kept of the dietary conditions obtaining in certain special groups of families, viz., those in which the head of the household was an unemployed person, a widow with pension, or an old-age pensioner. It is intended to issue a further report in which these results will be presented.

An Roinn Sláinte,
Márta, 1950.

NATIONAL NUTRITION SURVEY

DIETARY SURVEY—FARM WORKERS' FAMILIES.

Scope of Survey.

The tables which accompany this report show the results of a dietary survey of the families of **farm workers,** i.e., agricultural labourers who normally earned their living by working on farms belonging to other people. The survey was made simultaneously with the survey of the farming families, the results of which have already been published, that is to say, from October, 1946, to September, 1948. Farm workers who lived in their employers' houses were not included, nor were those who, although living out, were unmarried. It seemed clear that those who lived in had their dietary intake determined by the level of that of the farming families with whom they lived, and that unmarried labourers living out would normally not be the heads of their households. The total number of "married male agricultural labourers living out" in the whole country, according to the 1936 Census, was 31,981, or roughly one quarter of all male agricultural labourers, and the number of these families surveyed was 177, or something over 0.5 per cent. of the total. The number examined in each county—and every county in the State was included in the survey—was determined by the proportion of such workers in that county to the total number in the State. The resulting number was then distributed amongst the District Electoral Divisions already selected in each county for the survey of farming families. The actual selection of the individual families, once the number to be examined in a particular District Electoral Division had been determined, was made by the investigator, who enquired of the first *farming* family visited the situation of the nearest farm labourer's household, and continued on these lines until the required number of farm workers' families had been accounted for.

Since the wages of agricultural labourers had already been fixed by statute when this part of the survey was being made, the figures from the tables in which the families have been classified according to income can be regarded as more accurate than the corresponding figures appearing in the earlier published reports, which dealt with certain other sections of the population; in those cases, the income calculations had no such precise basis.

The standard wages laid down for agricultural labourers varied somewhat in different parts of the country, higher rates being payable in the neighbourhood of Dublin and the other County Boroughs than in the remainder of the country. They varied also as a whole during the time occupied by the survey, but it will probably be sufficient to state the range of wages. The minimum basic wage payable to agricultural labourers aged 20 years and over in any area during the period of the survey was 44/- per week, and the maximum basic wage was 65/-. Between the ages of 16 and 20 years, the basic wage-scale varied with age from 29/- per week upwards.

In some cases, part of the farm labourer's income was paid in kind, as, for example, where certain of his meals were supplied by the employer, or where free milk or vegetables formed part of his remuneration. These items have been costed, and used in the calculations as part of his income. In other cases, other members of the household were earning as well as the agricultural labourer, e.g., his unmarried brother, perhaps, living with him, or a grown-up daughter employed as a domestic. Such earnings, or rather that part of them which was paid to the housewife, were also included in the family income. It was not unusual to find that a small piece of land of his own was worked, perhaps to the extent of his keeping a vegetable garden or some poultry, or occasionally keeping a cow. The results of the costing of such produce were not included in the estimates of the family income.

Method.

The methods used in this section of the survey were the same as in those sections already published. Broadly, a record was obtained of all the food eaten in the house during one whole week—the exact procedure was described fully in the report on the dietary survey in Dublin City—and this formed the basis of the subsequent calculations. Allowance was made for meals eaten away from home, and such items as school meals were also accounted for. Waste was not allowed for except as regards the inedible parts of the various foodstuffs, i.e., kitchen- and plate-wastes were not considered.

As in the case of other sections of the population which were rural in character, the device described in earlier reports for computing the amounts of foods used during the survey week, when such foods were normally kept in bulk stores (potatoes, flour, etc.) was used here also.

In keeping with the treatment of earlier figures derived from rural populations, tables have not been produced showing the families classified according to expenditure on food, because when comparatively large proportions of the food used were home-produced and were not actually purchased for money, such a classification would not reflect the real expenditures of the families.

The two classifications used in this section of the survey are those according to (1) income and (2) the number of persons in the family.

Rationed Foods.

Since the part of the survey now described was made simultaneously with the survey of farming families, the paragraphs of the report published earlier (dealing with farming families), which described the rationing of certain foods, apply equally to the families now under discussion and do not, therefore, call for repetition. The foods rationed were sugar, tea, butter, margarine, and bread and flour.

Flour Extraction.

The level of extraction of flour was 90 per cent. up to January, 1947, when it was reduced to 85 per cent., where it remained throughout the rest of the survey period. The flour carried a variable admixture of acid calcium phosphate, and the assumption has again been made here, as in the farming families, that this admixture was at the average level of 14 oz. per 280 lb. sack.

Reliability of Results.

Again as in the case of the farming families, reliable statistics were not available against which the figures of consumption emerging from the survey could be accurately checked. It must suffice to say that the survey figure of 12.0 oz. of sugar consumption per head per week, when compared with the figure of 10.7 oz., which was the average level of the sugar *ration* over the survey period, seems to indicate general reliability, particularly when it is remembered that extra sugar was available for jam-making during the summer of 1948.

Extra sugar was also available to beet-growers, but this would not affect the present group of families.

Finally, the more or less consistent changes observed in the consumption figures of the various foods from one group of families to another, as income or size of family increased, of themselves suggest reliability.

Tables.

The results of the survey of farm workers' families appear in the tables at the end of this report, which may be conveniently grouped as follows :—

(1) Composition of sample (Tables 1).
(2) Consumption of, and expenditure on various foods or groups of foods (Tables 2, 3 and 4).
(3) Standards of requirements adopted (Table 5).
(4) Intake of nutrients, and the percentage which this intake represents of standard nutrient requirements (Tables 6 and 7).
(5) Types of meals eaten (Tables 8 and 9).
(6) Housing conditions. (Tables 10).

EXPLANATORY NOTES.

In the tables which follow, the symbol " – " is used to mean none, and " 0 " or " 0.0 " an insignificant amount.

Composition Tables.

Tables 1A and 1B show the composition by ages of the families surveyed, classified according to income and to the number of persons in the family. The average size of the farm workers' families was 5.4 persons, and this figure may be compared with the average sizes of families examined in other sections of the survey, which were 4.8 in Dublin City, 6.3 in other large towns, 6.7 in small towns, 4.6 in the " Congested Districts " and 4.9 in the farming families. The commonest size of family met with was one containing 5, 6 or 7 persons ; families within this range accounted for 43.5 per cent. of the total.

Consumption Tables.

Tables 2A and 2B show the average consumption per diet-head during the week of the survey of the various groups of foods by the farm workers' families, classified according to income (table 2A) and to the number of persons in the family (table 2B). The last column in both tables shows the average consumption per diet-head per week of all the families regarded as a single group. The consumption of milk was 5.1 pints. This figure includes milk in all its forms, and takes account of milk used for cooking (e.g., in the home-baking of bread), as well as for drinking and for use in tea or other such beverages. It may be compared with the figure of 9.2 pints, which was that found in the farming families, and with the Dublin figure of 4.8 pints. It was the lowest milk consumption figure found in any of the rural families examined, the figure in the Congested Districts in the spring period standing at 5.5 pints. The consumption of potatoes at 133.8 oz. per diet-head per week represented a reduction of 28.9 oz. on the figure found in farming families. Meat consumption at 21.8 oz. compared with 33.4 oz. in farming families, and eggs were taken to the extent of 3.3 per diet-head compared with 6.4 in farming families. In fact, there was an all-round reduction in consumption by the farm workers' families compared with farming families, and this was reflected in the table (table 6) showing intake of nutrients and calories.

The effect of rising income on consumption of various groups of foods is shown in table 2A, where nearly every food group showed a steadily rising consumption as income increased. Where the food was expensive, as in the case of meat, the rise was dramatic from one income group to another. The effect of differences in the numbers of persons in the family is shown in table 2B and, again in this table, the trend of consumption varied more or less steadily from one family group to another, that is, as the number of persons in the family increased, the consumption per diet-head of nearly all the foods decreased. Here again, the consumption of meat showed the most substantial reductions as the number of persons in the family increased, though the steady and considerable reduction in milk consumption is also significant.

Table 3 shows the consumption per diet-head weekly of the various foods shown separately, instead of in groups as in table 2. No point deserving of particular mention arose.

Expenditure Tables.

Tables 4A and 4B correspond to tables 2A and 2B in that they give the cost of the amounts of foods shown in the earlier tables. As in the other rural families, it is realised that where such large proportions of the foods eaten have been homegrown, it is not strictly accurate to put forward the costs of these foods as if they had been paid for in cash, but the figures do reflect costs of food intakes, even if they do not denote actual commercial transactions. It is important that the artificial nature of these figures be kept in mind in considering the following paragraphs, in which certain aspects of the expenditure tables are considered.

The income table (4A) shows the expenditure on the various groups of foods rising more or less steadily with increasing income. Meat shows the increase most clearly, but less consistent increases are seen in other foods such as milk, eggs, potatoes, vegetables and bread.

Similar trends appear in the table (4B) where the families have been classified according to their size.

In all the families taken as one group, meat accounted for the greatest proportion of the total expenditure on food, amounting to about 23 per cent. of the whole. Expenditure on bread and flour came to about 15 per cent., with fats (butter, margarine, etc.) the figure stood at about 12 per cent., while potatoes absorbed about 11 per cent. of the total expenditure. The amount spent on milk occupied the fifth place in order of magnitude at 10 per cent. This figure for milk was about the same as in Dublin, slightly less than in other towns, and considerably less than the figures relating to the Congested Districts and to farming families. In a word, the families of the farm workers spent a considerably smaller proportion of their food expenditure on milk than did any other groups of rural families. In fact, in this matter they followed the urban habit almost exactly.

Bread and potatoes are commonly regarded as "filling," in the sense that where incomes are low, they provide a cheap source for the supply of necessary calories. To say this is not to decry their value as foods, but merely to emphasise that they are usually found to bulk proportionately more largely in poor than in more well to do budgets. From this point of view, it is of interest to record the proportions of the total amounts spent on foods, by the families making up the various sections of the whole survey, which were devoted to flour, bread and potatoes. These items together accounted for widely differing percentages of the total amounts spent on food.

Thus, in farming families 19 per cent. was expended on them, in Dublin City 20 per cent., in large and small towns 22 per cent., in farm workers' families 26 per cent., and in the Congested Districts 30 per cent. in the spring survey and 32 per cent. in the autumn survey. The absolute amounts represented by these percentages were in farming families 3s. 2d., in Dublin City 2s. 8d., in large towns 2s. 9d., in small towns 2s. 8d., in farm workers' families, 3s. 0d., and in the Congested Districts 3s. 0d. in the spring and 3s. 10d. in the autumn survey.

Intake and Requirement Tables.

Where table 2A showed the consumptions of various groups of foods in terms of weight of the foods, table 6 shows the same consumptions in terms of nutrients and calories. This table is produced as a necessary step in the production of table 7A, where the intakes of the family groups and of the sample as a whole are shown as percentages of their estimated requirements. A similar intake table was produced in calculating table 7B, but has not been included.

In making the calculations, farm workers were considered to be doing "heavy work" (table 5), requiring 4,500 calories daily. The intake of calories by the farm workers' families amounted to 2,745 per diet-head per day or about 100 more than in Dublin. The intake of protein amounted to 84 gm., of which 30 gm. were animal protein ; these figures bear a close resemblance to the Dublin returns.

Tables 7A and 7B show the *adequacy* of the diets when related to estimated requirements.

In general, and despite some insignificant exceptions, the intake of all nutrients and of calories increased more or less steadily with rising incomes, and decreased, though somewhat less consistently, with increasing numbers of persons in the family.

The protein intake reached satisfactory levels for all the groups into which the families were divided, and the figure for the sample as a whole was good at 130 per cent. of estimated requirements.

The intake of calories was more than 100 per cent. of estimated requirements in all groups except the lowest income group, where it reached just 100 per cent. Since this figure is the average of 25 families, it follows that some of them must have been receiving less than their full estimated requirements.

Over the whole sample, the calcium intake at 106 per cent. of estimated requirements seems satisfactory, but where the income was below 10/– per head weekly, or the number of persons in the family over 7, moderate shortages were observed. Calcium in ordinary diets is mainly derived from milk, but even a small regular increase in the consumption of cheese would probably rectify the position completely. The possible effect of hard water in increasing the intake of calcium has not been taken into account in computing the figures, so that in areas where the water is of this character, the intake of calcium is probably somewhat higher than is shown in the tables.

Iron, vitamin B_1 and niacin all showed satisfactory levels of consumption in all groups. These are derived mainly from bread and meat.

The vitamin A intake exceeded the estimated requirement in only one income group, and in the lowest (under 10/-) income group, reached only 53 per cent. In all the families together, this vitamin was taken only to the extent of 80 per cent. of estimated requirements. When the number of persons in the family was the basis of the classification adopted, the only persons whose intake exceeded their requirement were those in families of 1 or 2 persons. In larger families, the figure fell to about three-quarters of the requirement. Vitamin A is supplied mostly by summer milk and butter, green vegetables and carrots, and liver. Cabbage is not a rich source of the vitamin.

The intake of vitamin C reached highly satisfactory levels in all groups. For all the families together, the intake amounted to over twice the estimated requirements, while the lowest figure recorded was that in the group whose income was under 10/- per head per week, in which it reached 159 per cent. of requirements. The large intake of potatoes undoubtedly had a material effect in securing such high supplies.

Meals Tables.

Table 8 shows the proportions of the meals taken which were of the simple " bread and spread " type and of the " cooked " type. Certain kinds of meals (cereals, cake, etc.) were not included in the calculations, so that the figures are not exhaustive. The families have been classified according to income, and divided into three broad age-groups as indicated, comprising children, adolescents and adults.

On the whole, there is a general trend away from the " bread and spread " and towards the " cooked " meal as income increases. This is least marked in the adolescent group, and is, in any case, somewhat irregular. In all the families together, it emerged that in children the simpler meal was the commoner, in adolescents the reverse was true, and in adults the two kinds of meal were taken with equal frequency.

The prevailing food habits of the families are represented by the figures shown in table 9. The families have been classified according to income, and sub-divided into the same three age-groups as in table 8, namely children, adolescents and adults.

Breakfast : For children, the commonest meal at breakfast was one consisting of, say, milk and bread and butter, which accounted for about half the total children's breakfasts, and next in frequency was a meal of cooked protein—say, eggs or bacon, etc.—which came to about one-third of the total. In adolescents, these figures were almost exactly reversed, while in adults the two types of meal were about equally frequent, with the balance slightly in favour of the cooked breakfast. At all ages, the trend with varying incomes was not very consistent.

Dinner : At dinner, the commonest meal in all three age-groups was one of cooked protein and vegetables, with bread and butter or pudding ; this was somewhat more common in adolescents and in adults than in children, in that order. Next in order of frequency was a dinner of cooked protein with or without vegetables. In adults and adolescents, this kind of dinner was about twice as common as one consisting of potatoes and milk or butter, with or without bread and butter, whereas in children the two ran at the same figure of 23 per cent. of all dinners. These figures were broadly similar to those found in farming families, with the more complete meal rather commoner in the latter. In children the differences were somewhat wider, and a cooked protein dinner of one sort or another in this age-group was much commoner in the farming families than in those of farm workers, and a dinner of potatoes and milk occurred more frequently in the farm workers' families than in the others.

Tea : For tea, the most frequent meal in all three age-groups was a simple meal consisting probably of tea with bread and butter or jam. Roughly two-thirds of all teas were of this kind. A tea of cooked protein (say eggs and bacon, etc.) was next in frequency at all ages, accounting for roughly one-sixth of all teas. The figures for farming families were very similar, with the qualification that the cooked meal was somewhat commoner, amounting to roughly a fifth of the total.

Supper: No supper was taken by about a quarter of the children and about one-fifth of the adults; in adolescents 12 per cent. had no supper. At all ages the commonest supper was a simple one, probably of milk or tea with bread and butter, or biscuits; this kind of supper was taken by about half the families. About a quarter of all the families had a cereal supper—probably porridge.

Housing.

The housing conditions from the point of view of overcrowding are shown in table 10. More than 2 persons per room—a figure selected more or less arbitrarily as indicative of overcrowding—were encountered only where the income was less than 10/- per head per week, or where the family consisted of more than 7 persons. The figures somewhat resemble those for Dublin City as a whole; they are distinctly less favourable than those relating to farming families.

SUMMARY.

1. A food survey was made in the period October, 1946, to September, 1948, of 177 farm workers' families living in all parts of the country. The number of persons involved was 951.

2. The consumption of meat, milk, eggs, vegetables and fruit increased consistently as income increased, and decreased with almost equal consistency as the number of persons in the family increased. Consumption of bread and potatoes followed the same general trends. Consumption of cheese was low in all groups of families. Milk consumption at 5.1 pints per head per week was low for a rural survey; the figure in Dublin City was 4.8 pints and in farming families was 9.2 pints. The consumption generally showed a marked reduction by comparison with the farming community; for example, apart from milk, the consumptions of vegetables, eggs, meat and potatoes were all significantly lower in the farm workers' families.

3. Intakes of protein and calories, of iron and vitamins of the B group, and of vitamin C were satisfactory. The intake of vitamin A was generally markedly below estimated requirements; in the lowest income group it was only 53 per cent., and in the larger families it reached about 75 per cent. For all the families together, the figure was 80 per cent.

4. Broadly, simple meals of the "bread and spread" type were commoner in the poorer families and were to some extent replaced by cooked meals as income increased. Amongst persons aged from 15 to 19 years, however, the cooked meal was well supplied, even amongst the poorest families. The distinction here is between "bread and spread" and "cooked" meals; it is not a question of whether the meals were main or subsidiary.

5. Apart from the widespread deficiency in vitamin A, the diets were generally good.

6. From the point of view of overcrowding, the position was good; figures indicating it emerged only in the poorest and largest families.

TABLE 1A.—AVERAGE COMPOSITION OF 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO INCOME.

FAMILY COMPOSITION	INCOME PER HEAD WEEKLY					
	Under 10/–	10/– and under 15/–	15/- and under 20/–	20/- and under 30/–	30/- and over	All incomes
Total number of families . .	25	57	32	34	29	177
Total number of persons . .	188	341	171	138	113	951
Total number of diet-heads . .	182.8	333.3	167.9	133.2	111.6	928.8
Children 0—14 per family . .	4.6	3.4	2.2	0.9	0.3	2.4
Children 15—16 per family . .	0.1	0.1	0.1	0.1	—	0.1
Other persons per family . .	2.8	2.5	3.0	3.1	3.6	2.9
Total persons per family . .	7.5	6.0	5.3	4.1	3.9	5.4
Percentage distribution of families . .	14.1	32.2	18.1	19.2	16.4	100

TABLE 1B.—AVERAGE COMPOSITION OF 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

Family Composition	Number of persons in family					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Total number of families ..	17	52	77	29	(*a*)	177
Total number of persons ..	33	188	456	250		951
Total number of diet-heads ..	31.7	181.3	445.8	247.0		928.8
Children 0—14 per family ..	—	0.8	2.8	5.0		2.4
Children 15—16 per family ..	—	0.1	0.1	0.1		0.1
Other persons per family ..	1.9	2.7	3.0	3.5		2.9
Total persons per family ..	1.9	3.6	5.9	8.6		5.4
Percentage distribution of families	9.6	29.4	43.5	16.4		100

(*a*) Insufficient number of families to give trustworthy results.

TABLE 2A.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO INCOME.

COMMODITY GROUP	Unit of Quantity	INCOME PER HEAD WEEKLY																	
		Under 10/–			10/- and under 15/-			15/- and under 20/-			20/- and under 30/-			30/- and over			All incomes		
		Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**	Bought and Free	Home Won	**Total**
Milk (*a*) ..	Pints	3.0	0.5	**3.5**	4.2	0.9	**5.1**	4.0	1.2	**5.2**	4.3	2.0	**6.3**	5.1	1.5	**6.6**	4.0	1.1	**5.1**
Cheese ..	Oz.	0.4	—	**0.4**	0.6	—	**0.6**	1.1	—	**1.1**	2.0	—	**2.0**	1.3	—	**1.3**	0.9	—	**0.9**
Eggs ..	Number	0.9	0.9	**1.8**	1.0	1.6	**2.6**	1.4	3.0	**4.4**	1.4	3.0	**4.4**	2.5	2.7	**5.2**	1.3	2.0	**3.3**
Fats (*b*) ..	Oz.	7.7	0.2	**7.9**	8.5	—	**8.5**	9.6	0.3	**9.9**	9.6	0.9	**10.5**	9.8	0.3	**10.1**	8.8	0.3	**9.1**
Meat (*c*) ..	,,	9.9	—	**9.9**	15.1	—	**15.1**	23.0	1.1	**24.1**	31.0	0.2	**31.2**	44.0	2.9	**46.9**	21.2	0.6	**21.8**
Fish ..	,,	0.5	—	**0.5**	1.4	—	**1.4**	1.0	—	**1.0**	2.8	—	**2.8**	2.3	—	**2.3**	1.5	—	**1.5**
Flour and Bread (*d*) ..	,,	80.0	0.1	**80.1**	85.0	—	**85.0**	90.7	0.0	**90.7**	96.6	0.2	**96.8**	95.3	0.1	**95.4**	87.9	0.0	**87.9**
Other Cereals	,,	3.8	—	**3.8**	6.6	—	**6.6**	6.7	—	**6.7**	6.5	—	**6.5**	6.8	—	**6.8**	6.1	—	**6.1**
Potatoes, including Chips	,,	36.7	74.7	**111.4**	33.1	86.0	**119.1**	34.7	116.1	**150.8**	56.5	67.0	**123.5**	48.7	152.5	**201.2**	39.3	94.5	**133.8**
Vegetables ..	,,	6.5	4.6	**11.1**	10.5	9.1	**19.6**	10.6	15.7	**26.3**	10.2	13.5	**23.7**	19.1	24.5	**43.6**	10.7	11.9	**22.6**
Fruit and Fruit Products ..	,,	1.0	0.3	**1.3**	4.6	0.0	**4.6**	3.5	0.3	**3.8**	5.2	0.1	**5.3**	3.6	1.7	**5.3**	3.7	0.4	**4.1**
Sugar ..	,,	11.4	—	**11.4**	11.9	—	**11.9**	12.4	—	**12.4**	12.5	—	**12.5**	12.0	—	**12.0**	12.0	—	**12.0**
Preserves ..	,,	2.8	—	**2.8**	4.1	—	**4.1**	4.6	—	**4.6**	8.7	—	**8.7**	7.7	—	**7.7**	5.0	—	**5.0**
Miscellaneous (*e*)	,,	0.4	—	**0.4**	0.4	—	**0.4**	0.2	—	**0.2**	0.3	—	**0.3**	0.3	—	**0.3**	0.3	—	**0.3**

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 2B.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

COMMODITY GROUP	Unit of Quantity	NUMBER OF PERSONS IN FAMILY																	
		1 or 2 persons			3 or 4 persons			5, 6 or 7 persons			8, 9, 10 or 11 persons			Over 11 persons			All sizes of family		
		Bought and Free	Home Won	Total	Bought and Free	Home Won	Total	Bought and Free	Home Won	Total	Bought and Free	Home Won	Total	Bought and Free	Home Won	Total	Bought and Free	Home Won	Total
Milk (*a*) ..	Pints	5.7	1.7	**7.4**	4.9	0.8	**5.7**	4.1	1.3	**5.4**	3.3	0.9	**4.2**				4.0	1.1	**5.1**
Cheese ..	Oz.	1.3	—	**1.3**	1.0	—	**1.0**	0.8	—	**0.8**	1.0	—	**1.0**				0.9	—	**0.9**
Eggs ..	Number	2.7	4.0	**6.7**	1.4	2.4	**3.8**	1.2	1.9	**3.1**	1.3	1.9	**3.2**				1.3	2.0	**3.3**
Fats (*b*) ..	Oz.	11.1	1.0	**12.1**	9.5	0.1	**9.6**	8.8	0.2	**9.0**	8.5	0.4	**8.9**				8.8	0.3	**9.1**
Meat (*c*) ..	,,	53.3	—	**53.3**	30.3	—	**30.3**	18.6	0.7	**19.3**	16.5	0.9	**17.4**				21.2	0.6	**21.8**
Fish ..	,,	0.8	—	**0.8**	2.3	—	**2.3**	1.5	—	**1.5**	1.2	—	**1.2**		(*f*)		1.5	—	**1.5**
Flour and Bread (*d*) ..	,,	105.3	0.2	**105.5**	97.5	—	**97.5**	83.5	0.0	**83.5**	85.1	0.1	**85.2**				87.9	0.0	**87.9**
Other Cereals	,,	12.2	—	**12.2**	5.6	—	**5.6**	6.1	—	**6.1**	6.2	—	**6.2**				6.1	—	**6.1**
Potatoes, including Chips	,,	95.6	86.8	**182.4**	41.8	90.8	**132.6**	44.5	85.9	**130.4**	21.9	113.0	**134.9**				39.3	94.5	**133.8**
Vegetables ..	,,	17.5	31.2	**48.7**	14.5	15.5	**30.0**	11.5	10.3	**21.8**	6.0	10.8	**16.8**				10.7	11.9	**22.6**
Fruit and Fruit Products ..	,,	4.1	1.0	**5.1**	3.1	1.3	**4.4**	3.8	0.1	**3.9**	4.1	0.1	**4.2**				3.7	0.4	**4.1**
Sugar ..	,,	12.3	—	**12.3**	12.0	—	**12.0**	11.7	—	**11.7**	12.4	—	**12.4**				12.0	—	**12.0**
Preserves ..	,,	7.0	—	**7.0**	6.5	—	**6.5**	5.5	—	**5.5**	3.2	—	**3.2**				5.0	—	**5.0**
Miscellaneous (*e*)	,,	0.9	—	**0.9**	0.2	—	**0.2**	0.5	—	**0.5**	0.2	—	**0.2**				0.3	—	**0.3**

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.
(*f*) Insufficient number of families to give trustworthy results.

TABLE 3.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 177 FARM WORKERS' FAMILIES.

COMMODITY	Unit of Quantity	Bought and Free	Home Won	Total
Butter	Oz.	6.6	0.3	6.9
Margarine	,,	1.6	—	1.6
Other fats	,,	0.6	—	0.6
Sugar	,,	12.0	—	12.0
Preserves	,,	5.0	—	5.0
Syrup and treacle	,,	0.0	—	0.0
Milk liquid, milk whole condensed, and milk whole dried	Pints	3.2	0.9	4.1
Skimmed milk and buttermilk and skimmed condensed milk	,,	0.8	0.1	0.9
Cheese	Oz.	0.9	—	0.9
Eggs	Number	1.3	2.0	3.3
Beef and veal	Oz.	10.5	0.0	10.5
Mutton and lamb	,,	1.2	—	1.2
Pork	,,	0.1	—	0.1
Corned beef, mutton or pork	,,	1.8	—	1.8
Bacon	,,	2.3	0.2	2.5
Liver (sheep)	,,	0.0	—	0.0
Liver (other)	,,	0.2	—	0.2
Cooked and canned meat	,,	0.6	—	0.6
Other offals	,,	0.3	0.4	0.7
Sausages, uncooked	,,	3.1	—	3.1
Other meat products	,,	1.1	—	1.1
White fish	,,	0.5	—	0.5
White fish—processed	,,	0.1	—	0.1
Fat fish—fresh	,,	0.6	—	0.6
Fat fish—processed	,,	0.1	—	0.1
Fish canned	,,	0.1	—	0.1
Potatoes, unpeeled, peeled and chips	,,	39.3	94.5	133.8
Carrots	,,	0.3	0.8	1.1
Other roots	,,	3.3	4.0	7.3
Green vegetables	,,	4.2	6.2	10.4
Miscellaneous vegetables	,,	2.5	0.9	3.4
Legumes, fresh	,,	0.0	—	0.0
Pulses, dried	,,	0.3	—	0.3
Pulses, canned	,,	—	—	—
Tomatoes	,,	0.8	—	0.8
Citrus fruits	,,	0.4	—	0.4
Other fruits	,,	1.4	0.4	1.8
Bottled and canned fruit	,,	0.0	—	0.0
Dried vine fruit	,,	0.7	—	0.7
Flour	,,	38.5	—	38.5
Wholemeal	,,	3.9	—	3.9
Bread	,,	47.8	0.1	47.9
Biscuits (including wafers, excluding oatmeal biscuits)	,,	0.4	—	0.4
Cakes	,,	0.3	—	0.3
Puddings	,,	—	—	—
Oatmeal and oat products	,,	4.5	—	4.5
Breakfast cereals	,,	0.2	—	0.2
Cereals (rice and barley)	,,	0.0	—	0.0
Cereals (flour base)	,,	0.2	—	0.2
Other cereals	,,	0.4	—	0.4
Cocoa and cocoa-based drinks	,,	0.2	—	0.2
Patent drinks and foods	,,	0.1	—	0.1

TABLE 4A.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO INCOME.

Commodity Group	Income per head weekly																	
	Under 10/–			10/- and under 15/-			15/- and under 20/-			20/- and under 30/-			30/- and over			All incomes		
	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Home Won	**Total**	Bought	Hone Won	**Total**	Bought	Home Won	**Total**
	s. d.	s. d.	**s. l .**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**
Milk ..	0 7	0 2	**0 9**	0 11	0 3	**1 2**	0 11	0 3	**1 2**	1 0	0 6	**1 6**	1 0	0 4	**1 4**	0 11	0 3	**1 2**
Cheese ..	0 1	—	**0 1**	0 1	—	**0 1**	0 2	—	**0 2**	0 3	—	**0 3**	0 2	—	**0 2**	0 2	—	**0 2**
Eggs ..	0 3	0 3	**0 6**	0 3	0 5	**0 8**	0 4	0 10	**1 2**	0 5	0 10	**1 3**	0 9	0 9	**1 6**	0 4	0 7	**0 11**
Fats (*a*) ..	1 2	0 0	**1 2**	1 3	—	**1 3**	1 5	0 1	**1 6**	1 5	0 2	**1 7**	1 6	0 1	**1 7**	1 4	0 0	**1 4**
Meat (*b*) ..	1 1	—	**1 1**	1 9	—	**1 9**	2 9	0 2	**2 11**	3 9	0 0	**3 9**	5 4	0 5	**5 9**	2 6	0 1	**2 7**
Fish ..	0 0	—	**0 0**	0 1	—	**0 1**	0 1	—	**0 1**	0 2	—	**0 2**	0 3	—	**0 3**	0 1	—	**0 1**
Flour and Bread	1 7	0 0	**1 7**	1 8	—	**1 8**	1 9	0 0	**1 9**	2 0	0 0	**2 0**	1 10	0 0	**1 10**	1 9	0 0	**1 9**
Other Cereals	0 2	—	**0 2**	0 3	—	**0 3**	0 4	—	**0 4**	0 5	—	**0 5**	0 5	—	**0 5**	0 4	—	**0 4**
Potatoes, including Chips	0 4	0 7	**0 11**	0 3	0 10	**1 1**	0 3	1 2	**1 5**	0 6	0 8	**1 2**	0 4	1 7	**1 11**	0 4	0 11	**1 3**
Vegetables ..	0 1	0 1	**0 2**	0 2	0 2	**0 4**	0 2	0 3	**0 5**	0 3	0 3	**0 6**	0 3	0 4	**0 7**	0 2	0 2	**0 4**
Fruit and Fruit Products ..	0 1	0 0	**0 1**	0 3	0 0	**0 3**	0 3	0 0	**0 3**	0 4	0 0	**0 4**	0 3	0 0	**0 3**	0 3	0 0	**0 3**
Sugar ..	0 4	—	**0 4**	0 4	—	**0 4**	0 4	—	**0 4**	0 4	—	**0 4**	0 3	—	**0 3**	0 4	—	**0 4**
Preserves ..	0 3	—	**0 3**	0 4	—	**0 4**	0 4	—	**0 4**	0 9	—	**0 9**	0 8	—	**0 8**	0 5	—	**0 5**
Miscellaneous (*c*)	0 5	—	**0 5**	0 5	—	**0 5**	0 5	—	**0 5**	0 6	—	**0 6**	0 7	—	**0 7**	0 6	—	**0 6**
TotalExpenditure	6 5	1 1	7 6	8 0	1 8	9 8	9 6	2 9	**12 3**	12 1	2 5	**14 6**	13 7	3 6	**17 1**	9 5	2 0	**11 5**

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 4B.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

COMMODITY GROUP	NUMBER OF PERSONS IN FAMILY																	
	1 or 2 persons			3 or 4 persons			5, 6 or 7 persons			8, 9, 10 or 11 persons			Over 11 persons			All sizes of family		
	Bought	Home Won	Total	Bought	Home Won	Total	Bought	Home Won	Total	Bought	Home Won	Total	Bought	Home Won	Total	Bought	Home Won	Total
	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**	s. d.	s. d.	**s. d.**
Milk ..	1 4	0 6	**1 10**	1 0	0 2	**1 2**	0 11	0 4	**1 3**	0 8	0 3	**0 11**				0 11	0 3	**1 2**
Cheese ..	0 3	—	**0 3**	0 2	—	**0 2**	0 1	—	**0 1**	0 2	—	**0 2**				0 2	—	**0 2**
Eggs ..	0 10	1 2	**2 0**	0 4	0 8	**1 0**	0 4	0 6	**0 10**	0 4	0 7	**0 11**				0 4	0 7	**0 11**
Fats (*a*) ..	1 9	0 2	**1 11**	1 5	0 0	**1 5**	1 4	0 0	**1 4**	1 3	0 1	**1 4**				1 4	0 0	**1 4**
Meat (*b*) ..	6 3	—	**6 3**	3 6	—	**3 6**	2 2	0 1	**2 3**	1 11	0 1	**2 0**				2 6	0 1	**2 7**
Fish ..	0 1	—	**0 1**	0 2	—	**0 2**	0 1	—	**0 1**	0 1	—	**0 1**				0 1	—	**0 1**
Flour and Bread	2 2	0 0	**2 2**	1 11	—	**1 11**	1 7	0 0	**1 7**	1 9	0 0	**1 9**				1 9	0 0	**1 9**
Other Cereals	0 10	—	**0 10**	0 3	—	**0 3**	0 4	—	**0 4**	0 3	—	**0 3**		(*d*)		0 4	—	**0 4**
Potatoes including Chips	0 11	0 11	**1 10**	0 5	0 10	**1 3**	0 4	0 10	**1 2**	0 2	1 1	**1 3**				0 4	0 11	**1 3**
Vegetables ..	0 3	0 4	**0 7**	0 3	0 3	**0 6**	0 2	0 2	**0 4**	0 1	0 2	**0 3**				0 2	0 2	**0 4**
Fruit and Fruit Products ..	0 3	0 0	**0 3**	0 2	0 0	**0 2**	0 3	0 0	**0 3**	0 2	0 0	**0 2**				0 3	0 0	**0 3**
Sugar ..	0 3	—	**0 3**	0 4	—	**0 4**	0 4	—	**0 4**	0 4	—	**0 4**				0 4	—	**0 4**
Preserves ..	0 7	—	**0 7**	0 6	—	**0 6**	0 5	—	**0 5**	0 3	—	**0 3**				0 5	—	**0 5**
Miscellaneous (*c*)	0 8	—	**0 8**	0 6	—	**0 6**	0 5	—	**0 5**	0 5	—	**0 5**				0 6	—	**0 6**
Total expenditure ..	16 5	3 1	**19 6**	10 11	1 11	**12 10**	8 9	1 11	**10 8**	7 10	2 3	**10 1**				9 5	2 0	**11 5**

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.
(*d*) Insufficient number of families to give trustworthy results.

TABLE 5.—RECOMMENDED DAILY REQUIREMENTS OF NUTRIENTS PER HEAD (LEAGUE OF NATIONS TECHNICAL COMMISSION).

AGE IN YEARS	Under 1 year	1–3 years	4–7 years	8–12 years	13–15 years	16–17 years	18–21 years	MALES			FEMALES		
								Sedentary work	Medium work	Heavy work	Sedentary work	Medium work	Pregnant or Lactating
Calories . .	800	1,100	1,500	2,100	2,900	3,000	3,000	2,500	3,000	4,500	2,500	3,000	3,000
Protein gms. . .	20	42	50	65	95	100	90	70	70	70	60	60	80
Calcium gms. . .	0.4	1.1	1.3	1.4	1.5	1.4	1.1	0.8	0.8	0.8	0.8	0.8	1.5
Iron mgms. . .	3.0	5.0	8.0	13.0	16.0	15.0	13.0	10.0	10.0	10.0	10.0	10.0	13.0
Vitamin A i.u. . .	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	5,000
Vitamin B_1 μgms.	360	495	675	945	1,305	900	900	9 0	900	900	750	750	1,800
(*a*) Riboflavin mgms.	0.6	0.9	1.1	1.6	2.1	2.3	2.4	1.9	1.9	1.9	1.5	1.5	3.0
(*a*) Niacin mgms. . .	4	6	7	11	14	16	16	13	13	13	11	11	23
(*b*) Vitamin C i.u. . .	600	600	600	600	600	600	600	600	600	600	600	600	900

(*a*) Recommendations in respect of riboflavin and niacin taken from National Research Council's (U.S.A.) scale.

(*b*) 20 i.u. Vitamin C = 1 mgm.

TABLE 6.—DAILY INTAKE OF NUTRIENTS PER DIET-HEAD IN 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO INCOME.

INCOME PER HEAD WEEKLY	Animal protein gms.	Vege-table protein gms.	Total protein gms.	Fat gms.	Carbo-hydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Ribo-flavin mgms.	Niacin mgms.	Vitamin C i.u.*
Under 10/– ..	17	48	65	54	370	2,226	856	13.2	1,441	198	1,639	1,494	1.5	12	970
10/- and under 15/-	25	51	76	67	408	2,542	1,098	15.4	1,861	367	2,228	1,685	1.9	13	1,034
15/- and under 20/-	32	56	88	84	450	2,908	1,166	18.7	2,232	337	2,569	1,937	2.2	16	1,436
20/- and under 30/-	40	57	97	99	466	3,141	1,316	19.3	2,755	557	3,312	1,975	2.4	17	1,295
Over 30/– ..	50	63	113	111	508	3,485	1,382	24.1	2,457	495	2,952	2,353	2.8	21	1,825
All incomes ..	30	54	84	78	428	2,745	1,128	17.2	2,045	371	2,416	1,815	2.0	15	1,227

* 20 i.u. Vitamin C = 1 mgm.

TABLE 7A.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO INCOME.

INCOME PER HEAD WEEKLY	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Under 10/- ..	105	100	76	131	53	179	97	116	159
10/- and under 15/-	125	110	99	154	74	208	125	131	171
15/- and under 20/-	132	111	108	180	85	222	129	139	237
20/- and under 30/-	143	106	136	183	110	233	136	140	215
Over 30/- ..	165	109	154	230	98	273	155	174	303
All incomes ..	130	108	106	167	80	217	126	137	203

TABLE 7B.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

NUMBER IN FAMILY	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
1 or 2 persons ..	194	119	195	269	139	308	183	197	284
3 or 4 persons ..	146	106	130	196	92	238	134	149	227
5, 6 or 7 persons ..	127	106	107	160	75	212	127	131	184
8, 9, 10 or 11 persons	119	109	88	152	76	202	116	132	205
Over 11 persons	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)
All sizes of family ..	130	108	106	167	80	217	126	137	203

(*a*) Insufficient number of families to give trustworthy results.

TABLE 8.—PERCENTAGE OF TOTAL MEALS EATEN AS "BREAD AND SPREAD" AND AS "COOKED" MEALS BY PERSONS OF VARIOUS AGE-GROUPS IN 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO INCOME.

Income per head weekly	Age 3—14 years		Age 15—19 years		Over 20 years	
	Bread and Spread	Cooked	Bread and Spread	Cooked	Bread and Spread	Cooked
Under 10/-	51	30	43	41	58	32
10/- and under 15/-	46	36	43	37	47	38
15/- and under 20/-	34	47	26	51	39	45
20/- and under 30/-	44	47	41	47	42	47
30/- and over	42	46	40	48	38	50
All incomes	45	37	37	45	44	43

" Bread and Spread " meals mean tea, etc., with bread and butter, margarine, jam or other such spread.
" Cooked " meals mean eggs, bacon, sausages, meat (hot or cold) or vegetables, etc.

TABLE 9.—PERCENTAGE FREQUENCY OF VARIOUS KINDS OF MEALS EATEN BY VARIOUS AGE-GROUPS IN 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO INCOME.

TYPE OF MEAL	Both Sexes 3—14 years						Both Sexes 15—19 years						Both Sexes over 20 years					
	Income per head weekly						Income per head weekly						Income per head weekly					
	Under 10/-	10/- and under 15/-	15/- and under 20/-	20/- and under 30/-	Over 30/-	**All incomes**	Under 10/-	10/- and under 15/-	15/- and under 20/-	20/- and under 30/-	Over 30/-	**All incomes**	Under 10/-	10/- and under 15/-	15/- and under 20/-	20/- and under 30/-	Over 30/-	**All incomes**
BREAKFASTS																		
Milk drink, or bread and spread with(out) drink	65	54	28	48		**51**	36	51	11	35		**31**	65	52	36	36	24	**41**
Cereals with(out) bread and spread	6	11	10	9		**10**	14	8	12	13		**12**	5	7	11	3	8	**7**
Cereals with cooked protein ..	4	8	9	1	(*a*)	**6**	—	9	16	3	(*a*)	**7**	3	5	5	2	2	**4**
Cooked protein without vegetables	25	27	51	40		**32**	50	32	60	46		**49**	27	36	47	58	64	**47**
Other Breakfasts	–	0	2	2		**1**	–	–	1	3		**1**	–	0	1	1	2	**1**
ALL BREAKFASTS	100	100	100	100		**100**	100	100	100	100		**100**	100	100	100	100	100	**100**
DINNERS																		
Milk drink, or bread and spread with(out) drink	22	12	6	3		**13**	13	15	9	19		**11**	21	8	6	10	6	**9**
Potato and milk or butter with(out) bread and spread	29	22	25	5		**23**	23	23	10	6		**13**	29	24	18	7	3	**16**
Cooked protein with(out) vegetables	27	20	26	31	(*a*)	**23**	30	29	34	39	(*a*)	**30**	27	26	33	47	26	**31**

Cooked protein and vegetables with bread and spread or pudding ..	22	42	38	61		**38**	34	33	47	35		**46**	23	40	40	35	63	**42**
Other Dinners	–	4	5	0		**3**	–	–	–	1		**0**	–	2	3	1	2	**2**
ALL DINNERS	100	100	100	100		**100**	100	100	100	100		**100**	100	100	100	100	100	**100**
TEAS																		
No meal	2	9	14	–		**7**	–	5	22	–		**7**	2	9	12	2	1	**5**
Milk drink, or bread and spread with(out) drink	77	66	59	55		**67**	56	73	43	33		**54**	80	66	58	62	59	**64**
Cereals with(out) bread and spread	4	0	–	–		**1**	20	–	–	–		**3**	3	1	–	0	0	**1**
Potato and milk or butter with(out) bread and spread	2	5	4	9	(*a*)	**4**	4	6	9	12	(*a*)	**8**	3	5	5	3	1	**4**
Cooked protein with(out) vegetables	8	12	18	29		**13**	13	11	15	25		**16**	9	13	18	21	30	**18**
Cooked protein and vegetables with bread and spread or pudding ..	5	3	2	4		**4**	7	–	4	24		**7**	3	2	3	7	5	**4**
Cake	1	3	2	3		**3**	–	5	3	4		**3**	0	3	2	4	4	**3**
Other Teas	1	2	1	0		**1**	–	–	4	2		**2**	–	1	2	1	0	**1**
ALL TEAS	100	100	100	100		**100**	100	100	100	100		**100**	100	100	100	100	100	**100**
SUPPERS																		
No meal	37	26	23	9		**27**	20	11	15	2		**12**	26	21	20	14	19	**19**
Milk drink, or bread and spread with(out) drink	42	54	44	71		**50**	66	35	41	74		**53**	58	62	54	59	60	**59**
Cereals with(out) bread and spread	17	12	10	10	(*a*)	**13**	10	39	15	17	(*a*)	**18**	9	10	8	12	6	**9**
Cooked protein with(out) vegetables	1	4	15	7		**6**	3	5	10	4		**7**	5	3	12	10	9	**8**
Cake	–	1	1	–		**0**	–	1	5	–		**2**	–	1	1	–	0	**1**
Other Suppers	3	3	7	3		**4**	1	9	14	3		**8**	2	3	5	5	6	**4**
ALL SUPPERS	100	100	100	100		**100**	100	100	100	100		**100**	100	100	100	100	100	**100**

(*a*) Insufficient number of meals to give trustworthy results.

TABLE 10A.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO INCOME.

	Income per head weekly					
	Under 10/-	10/– and under 15/-	15/- and under 20/-	20/- and under 30/-	30/- and over	All incomes
Number of families ..	25	57	32	34	29	177
Number of persons ..	188	341	171	138	113	951
Number of rooms	86	190	103	115	99	593
Rooms per family	3.4	3.3	3.2	3.4	3.4	3.4
Persons per room	2.2	1.8	1.7	1.2	1.1	1.6

TABLE 10B.—AVERAGE NUMBER OF ROOMS PER FAMILY AND PERSONS PER ROOM IN 177 FARM WORKERS' FAMILIES, CLASSIFIED ACCORDING TO NUMBER OF PERSONS IN FAMILY.

	NUMBER OF PERSONS IN FAMILY					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All sizes of family
Number of families ..	17	52	77	29	(*a*)	177
Number of persons	33	188	456	250		951
Number of rooms ..	53	171	258	105		593
Rooms per family ..	3.1	3.3	3.4	3.6		3.4
Persons per rooom ..	0.6	1.1	1.8	2.4		1.6

(*a*) Insufficient number of families to give trustworthy results.

(1093).H9150.Wt.4684/1541.3.3.1000.6/50.W.P.W.Ltd.2.

PRINTED AT
WOOD PRINTING WORKS, LTD.
WOLFE TONE STREET, DUBLIN.

AN ROINN SLÁINTE
Department of Health

NATIONAL NUTRITION SURVEY

Part VI

DIETARY SURVEY
OF
Exceptional Rural Families and Summarised Results of all the Dietary Surveys with Appendices

DUBLIN:
PUBLISHED BY THE STATIONERY OFFICE

To be purchased directly from the
GOVERNMENT PUBLICATIONS SALE OFFICE
3-4 COLLEGE STREET, DUBLIN
or through any Bookseller

(Pr. 172) Price One Shilling and Sixpence

FOREWORD

This Report is the sixth of the series in which the results of the National Nutrition Survey are being presented. It puts forward the results of dietary survey of a group of exceptional families living in the rural areas, and summarizes the results of all the dietary surveys. Two appendices are added, in the first of which are brought together and discussed the survey results of families of unemployed persons and pensioners, and in the second of which observations are made with regard to the consumption and importance of certain dairy products. Only a short account of methods and techniques is included, and for fuller information on these, reference may be made to Parts I to V of the National Nutrition Survey which have already been published.

The present Report is the last one dealing with the dietary surveys ; one further Report will be published giving the results of the clinical surveys which were conducted simultaneously.

An Roinn Sláinte,
Meán Fomhair, 1950.

CONTENTS

	PAGE
Foreword	2
Dietary survey of exceptional rural families	5
Summarised results of all the dietary surveys	8
Appendix 1	19
Appendix 2	45

NATIONAL NUTRITION SURVEY

DIETARY SURVEY OF EXCEPTIONAL RURAL FAMILIES.

In the course of the rural surveys, of which the results have been published already, twenty-three families were met with, which could not be fairly counted as farming or farm workers' families, and which have therefore been treated as a separate group, additional to the families dealt with in the earlier reports. They are referred to in the tables which follow as exceptional rural families. These families were those of such people as solicitors, lorry-owners, garage-proprietors, travellers and persons of independent means. The figures relating to these families have not been subjected to any special classification. The method of survey used was the same as that adopted in rural families generally.

The composition of the families is shown in table 1. There were 23 such families in all, comprising 122 persons, of whom 29 were resident employees. The average size of family was 5.3 persons.

The consumption table (table 2) shows a high intake of practically all foods. The figures resemble closely those of the farming families already published, but certain items differ widely between the two. Consumption of meat by these families amounted to over 3 lb. per diet-head weekly, or practically 1 lb. more than in farming families. Their consumptions of vegetables and fruit, at 41.9 oz. and 17.0 oz. respectively per diet-head weekly, were the highest recorded in any section of the population. On the other hand, their consumption of bread and flour amounted only to something less than three-quarters of the farming families' consumption, and as to potatoes, their consumption, though high, was less than that of the farming families by about a fifth.

The expenditure table (table 3) shows the average food expenditure per diet-head weekly as 19s. 9d.—the highest figure recorded throughout the whole survey. As might be expected, the item accounting for much the highest proportion of this sum was meat—no less than 31 per cent. of the total was spent on it. The item on which the next highest proportion was spent was milk, which accounted for 11 per cent. of the total ; next in order were eggs, which accounted for 9 per cent., flour and bread for 8 per cent., fats for 7 per cent., cereals other than flour for 6 per cent., potatoes for almost 6 per cent. and vegetables and fruit for 5 per cent. each.

The intake of nutrients and calories by these families appears in table 4, and can be regarded as quite satisfactory in every case. This intake expressed as a percentage of estimated requirements (table 5) is again reflected in high figures. In brief, the diets were found to be consistently excellent, and all nutrients and calories were amply supplied.

TABLE 1.—AVERAGE COMPOSITION OF 23 EXCEPTIONAL RURAL FAMILIES.

Total number of families	23
Total number of persons	122
Total number of diet-heads	120.2
Children 0-14 per family	1.2
Children 15-16 per family	—
Other persons per family	4.1
Total persons per family	5.3

TABLE 2.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 23 EXCEPTIONAL RURAL FAMILIES.

Commodity Group	Unit of Quantity	Bought and Free	Home Won	Total
Milk (*a*)	Pints	2.1	6.6	8.7
Cheese	Oz.	1.1	—	1.1
Eggs	Number	1.3	5.6	6.9
Fats (*b*)	Oz.	7.8	1.2	9.0
Meat (*c*)	,,	42.8	5.5	48.3
Fish	,,	5.3	0.5	5.8
Flour and Bread (*d*) ..	,,	63.8	6.2	70.0
Other Cereals	,,	14.3	0.9	15.2
Potatoes, including Chips ..	,,	30.3	102.3	132.6
Vegetables	,,	4.7	37.2	41.9
Fruit and Fruit Products ..	,,	7.4	9.6	17.0
Sugar	,,	10.7	—	10.7
Preserves	,,	6.8	0.1	6.9
Miscellaneous (*e*)	,,	0.7	—	0.7

(*a*) All forms stated as liquid milk.

(*b*) Including butter, margarine, suet, lard, etc.

(*c*) Including beef, mutton, pork, bacon, poultry and offals.

(*d*) Expressed as flour.

(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 3.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 23 EXCEPTIONAL RURAL FAMILIES.

Commodity Group	Bought	Home Won	Total
	s. d.	s. d.	s. d.
Milk	0 6	1 9	2 3
Cheese	0 2	—	0 2
Eggs	0 4	1 6	1 10
Fats (*a*)	1 2	0 2	1 4
Meat (*b*)	5 3	0 10	6 1
Fish	0 7	0 1	0 8
Flour and Bread	1 5	0 1	1 6
Other cereals	1 3	0 0	1 3
Potatoes, including Chips	0 2	1 0	1 2
Vegetables	0 2	0 10	1 0
Fruit and Fruit products	0 6	0 5	0 11
Sugar	0 4	—	0 4
Preserves	0 7	0 0	0 7
Miscellaneous (*c*)	0 8	0 0	0 8
Total Expenditure	13 1	6 8	19 9

(*a*) Including butter, margarine, suet, lard, etc.

(*b*) Including beef, mutton, pork, bacon, poultry and offals.

(*c*) Items such as tea, cocoa, coffee, sauces, patent drinks and foods, etc.

TABLE 4.—DAILY INTAKE OF NUTRIENTS PER DIET-HEAD IN 23 EXCEPTIONAL RURAL FAMILIES.

Animal protein gms.	59	Vitamin A i.u.	3,146
Vegetable protein gms.	51	Carotene (Vit. A potency) i.u.	1,203
Total protein gms.	110	Total Vitamin A i.u.	4,349
Fat gms.	122	Vitamin B_1 μgms.	2,084
Carbohydrate gms.	419	Riboflavin mgms.	3.0
Calories	3,213	Niacin mgms.	20
Calcium mgms.	1,472	Vitamin C. i.u.	1,678
Iron mgms.	22.1		

TABLE 5.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 23 EXCEPTIONAL RURAL FAMILIES.

Protein	171	Vitamin B_1	258
Calories	123	Riboflavin	184
Calcium	158	Niacin	178
Iron	218	Vitamin C	280
Vitamin A	145		

SUMMARISED RESULTS OF ALL THE DIETARY SURVEYS.

It becomes possible now to state the total number of families examined in the course of the dietary survey as a whole. This number was 2,693, of which the Dublin sample accounted for 500, the other large towns for 329, the small towns for 516, the farming families for 948, the farm workers' families for 177, the " Congested Districts " for 200, and the exceptional rural group for 23. As the Congested Districts families were surveyed twice, the full number of individual family surveys made was 2,893.

It is proposed now to gather together the results of survey of all these groups of families, and to present the principal figures as they bear on the whole group of 2,693 families, applying proper weighting to each separate group in assessing its effect on one final set of figures. Before proceeding to apply these weightings, however, certain preliminary adjustments have had to be made to the published figures relating to the urban samples. It has already been indicated that in Dublin, a deliberate bias was introduced towards the representation given to the slum or poorer families in the selection of the sample, and although such mention was inadvertently omitted from the Report on Large and Small Towns (Part III of the National Nutrition Survey), a bias existed there also, in that in the selection of the sample families, an emphasis was placed on larger families, so that the average size of family reported in Part III was larger than the known average size of families living in these towns.

The figures for Dublin and other towns already published have therefore been adjusted to allow for these biases ; the corrected figures are in nearly all cases slightly higher than those derived from the biased samples.

The corrected figures for the urban samples have been weighted according to the representation of each separate group in the population as a whole, and figures have been calculated which may be taken as applying to the whole country.

Different methods were adopted to correct the sample averages obtained in Dublin and in Large and Small Towns. The method used for the Dublin sample is fully explained in the appendix to the Report on the Dublin Survey. It consisted of applying weights 3, 7 and 5 respectively to the averages of the Slum, Artisan and Middle Class sections of the population.

In Large and Small Towns, where the bias was towards larger families, the sample averages were corrected by applying weights to the averages of each family size. From the 1946 Census, the aggregate population of large and small towns (excluding Dublin City) was classified according to the same sizes of family as were considered in the survey. The number of persons in each family size was expressed as a percentage of the total persons in all family sizes. The averages of consumption, etc. found by the survey to apply to each such family size in the large and small towns were then multiplied by the corresponding percentage in the particular family size in question. All these products were added together and divided by 100. This had the effect of applying the true weight or representation of each family size to the survey averages, and the resulting figures gave the corrected averages for all the families together.

Tables.

The tables which deal with figures concerning the country as a whole are presented as follows :—

(1) Uncorrected and corrected consumption of various foods in town areas (Table 6),

(2) Uncorrected and corrected expenditure on various foods in town areas (Table 7),

(3) Uncorrected and corrected daily intake of nutrients in town areas (Table 8),

(4) Consumption of foods in different areas of Ireland and in the whole country (Table 9),

(5) Expenditure on foods in different areas of Ireland and in the whole country (Table 10), and

(6) Intake of nutrients in different areas of Ireland and in the whole country (Table 11).

In these tables, only the consumption, expenditure and nutrient intake figures have been considered.

Consumption Table.

The consumption figures (table 9) for the whole country show clearly the effect of the high consumption by farming families on the ' national ' consumption. This depends, of course, on the ' weight ' used for farming families, which was nearly two and a half times as large as the next highest weight. Speaking purely of the whole country as a unit, it must be said that the consumption of the various foods was satisfactory. Milk consumption at 7.1 pints per diet-head weekly, or just over 1 pint daily, showed a satisfactory intake. Eggs were taken to the extent of 5.1 per diet-head weekly. The amount of meat (in all forms) consumed was 30.7 oz. per diet-head weekly. The figure for weekly consumption per diet-head of bread and flour was 88.6 oz., and of potatoes 135.4 oz., or slightly less than 1½ lb. daily. Cheese was but little consumed over the whole country, and stood at 0.8 oz. per diet-head weekly. Table 9 is a convenient representation of comparative figures relating to the various groups of families into which the whole sample was divided—for example, the Congested Districts' families stood out clearly from the other groups in their consumption of meat, where the figure of 15.3 oz. per diet-head weekly, in addition to being much lower than in any other group, came only to about half of the average for the country, and also of bread and flour and of potatoes, where the consumptions were much higher than in any of the other groups.

Expenditure Table.

The expenditure table (table 10) shows the expenditure per diet-head weekly for each of the groups of families (Dublin, Small towns, etc.) and for the whole country. The total cost of food per diet-head weekly throughout the country over the whole period of survey from April, 1946, to September, 1948, came to 14s. 8d., a figure which coincided more or less with the Dublin figure of 14s. 1d. Of the total expenditure of 14s. 8d., meat was the largest single item at 4s. 0d., or just over 27 per cent. Bread and flour together and milk each accounted for 1s. 9d., or about 12 per cent. of the total.

Intake Table.

The average intakes of the various nutrients and of calories for the whole country are given in table 11. The daily calorie intake per diet-head during the survey period stood at 3,105, a figure well above any of the urban intakes, and lower than any of the rural intakes except that of the farm labourers' families. The daily protein intake of 99 gms. seemed quite satisfactory : 42 gms. of this amount was made up of animal protein. Intake of calcium at 1,369 mgms. was decidedly high and reflected the high consumption of milk shown in table 9. The figures for iron and for the various vitamins were all well above normal requirements ; the principal sources of iron, vitamin B_1 and niacin are high extraction bread, and meat, riboflavin is derived from milk, etc. and meat, and vitamin C from fruit and vegetables, including potatoes. Vitamin A showed a satisfactory intake of 3,471 i.u. daily in the table—its principal sources are liver, dairy produce, green vegetables and carrots.

It is of interest to compare a few of these figures for Ireland with those contained in Food Balance Sheets prepared for the Food and Agriculture Organisation by the Central Statistics Office, Dublin, as relating to Ireland for the year 1947/48.

The comparison is necessarily a rough one because three different periods are involved, and also because the survey, as well as extending over more than two full years, dealt with different parts of the country each year. It would be natural that the survey figures should be lower than the others because the FAO calculations were made on figures relating to production level, whereas the survey figures were calculated at the household level, *i.e.*, after distribution and retail sale. It is also to be noted that the tables of food composition used in the FAO calculations were the 'Food Composition Tables for International Use' issued in 1949 by the Food and Agriculture Organisation, whereas the tables used for the purposes of the survey were those published in Britain as War Memorandum No. 14 by the Medical Research Council. The two tables give slightly different values for the various foods, and in addition, the former involve the use of factors which tend to give somewhat higher calorie values than the latter.

SOURCE	Calories per day	Protein gms. per day	Fat gms. per day
FAO Food Balance Sheet, 1947/48	3,260	104	108
National Nutrition Survey, 1946/48	3,105	99	102

TABLE 6.—SAMPLE AVERAGES AND CORRECTED AVERAGES OF CONSUMPTION OF FOODS PER DIET-HEAD WEEKLY IN TOWN AREAS.

COMMODITY GROUP		DUBLIN		LARGE TOWNS		SMALL TOWNS	
		Sample Averages	Corrected Averages	Sample Averages	Corrected Averages	Sample Averages	Corrected Averages
Milk (*a*)	Pints	4.8	5.1	4.4	4.9	5.1	5.7
Eggs	Number	4.0	4.3	3.4	3.7	3.7	4.3
Cheese	Oz.	1.2	1.2	1.2	1.2	0.8	0.8
Fats (*b*)	,,	9.6	9.7	8.9	10.0	8.7	9.1
Meat (*c*)	,,	33.3	34.4	31.2	32.7	25.1	28.5
Fish	,,	3.9	3.9	2.5	2.9	3.1	3.4
Flour and Bread (*d*)	,,	75.8	74.4	82.1	84.9	79.4	80.6
Other Cereals	,,	8.4	9.7	8.1	9.4	6.7	7.0
Potatoes	,,	82.7	82.1	102.7	106.5	111.0	112.0
Vegetables	,,	27.4	30.0	25.6	28.3	22.6	24.9
Fruit and Fruit Products	,,	9.3	11.5	6.7	7.3	5.7	6.9
Sugar	,,	12.8	12.9	9.0	9.4	11.6	11.9
Preserves	,,	3.9	4.3	4.0	4.6	4.4	5.0
Miscellaneous (*e*)	,,	0.6	0.6	0.7	0.8	0.4	0.5

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 7.—SAMPLE AVERAGES AND CORRECTED AVERAGES OF EXPENDITURE ON FOODS PER DIET-HEAD WEEKLY IN TOWN AREAS.

COMMODITY GROUP	DUBLIN		LARGE TOWNS		SMALL TOWNS	
	Sample Averages	Corrected Averages	Sample Averages	Corrected Averages	Sample Averages	Corrected Averages
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	1 4	1 6	1 4	1 5	1 4	1 5
Eggs	0 11	1 0	1 0	1 1	1 0	1 3
Cheese	0 2	0 2	0 2	0 2	0 1	0 1
Fats *(a)*	1 3	1 3	1 2	1 3	1 4	1 5
Meat *(b)*	3 8	3 11	3 6	3 9	3 3	3 9
Fish	0 4	0 4	0 2	0 3	0 3	0 3
Flour and Bread	1 10	1 9	1 11	2 0	1 7	1 7
Other Cereals	0 7	0 9	0 6	0 7	0 5	0 6
Potatoes	0 10	0 10	0 10	0 10	1 1	1 1
Vegetables	0 7	0 8	0 6	0 7	0 5	0 6
Fruit and Fruit Products	0 6	0 8	0 4	0 5	0 4	0 5
Sugar	0 4	0 5	0 3	0 3	0 3	0 3
Preserves	0 3	0 3	0 4	0 4	0 4	0 5
Miscellaneous *(c)*	0 7	0 7	0 6	0 7	0 6	0 7
TOTAL EXPENDITURE	13 2	14 1	12 6	13 6	12 2	13 6

(a) Including butter, margarine, suet, lard, etc.
(b) Including beef, mutton, pork, bacon, poultry and offals.
(c) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 8.—SAMPLE AVERAGES AND CORRECTED AVERAGES OF DAILY INTAKE OF NUTRIENTS PER DIET-HEAD IN TOWN AREAS.

	Animal Protein gms.	Vegetable Protein gms.	Total Protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.
DUBLIN :															
(*a*) Sample Averages ..	38	49	87	97	356	2,641	899	18.6	3,120	427	3,547	1,675	1.9	17	896
(*b*) Corrected Averages..	39	49	88	100	358	2,685	941	18.8	3,195	458	3,653	1,690	2.0	17	978
LARGE TOWNS :															
(*a*) Sample Averages ..	34	52	86	87	379	2,637	930	18.2	2,442	475	2,917	1,735	2.0	16	1,060
(*b*) Corrected Averages..	36	54	90	95	397	2,804	1,006	19.3	2,850	533	3,383	1,826	2.1	17	1,131
SMALL TOWNS :															
(*a*) Sample Averages ..	32	48	80	81	388	2,601	1,044	16.0	2,317	491	2,808	1,670	2.0	14	1,123
(*b*) Corrected Averages..	36	49	85	88	400	2,734	1,117	16.8	2,526	517	3,043	1,740	2.2	15	1,161

TABLE 9.—AVERAGE CONSUMPTION OF FOODS PER DIET-HEAD WEEKLY IN FAMILIES IN DIFFERENT AREAS OF IRELAND AND IN THE WHOLE COUNTRY.

COMMODITY GROUP		Dublin	Large Towns	Small Towns	Farming Families	Farm Labourers' Families	Congested Districts	Ireland
Milk (*a*)	Pints	5.1	4.9	5.7	9.2	5.1	8.1	7.1
Eggs	Number	4.3	3.7	4.3	6.4	3.3	4.3	5.1
Cheese	Oz.	1.2	1.2	0.8	0.6	0.9	0.5	0.8
Fats (*b*)	,,	9.7	10.0	9.1	12.3	9.1	7.9	10.6
Meat (*c*)	,,	34.4	32.7	28.5	33.4	21.8	15.3	30.7
Fish	,,	3.9	2.9	3.4	3.1	1.5	7.6	3.5
Flour and Bread (*d*)	,,	74.4	84.9	80.6	94.8	87.9	113.9	88.6
Other Cereals ..	,,	9.7	9.4	7.0	11.8	6.1	12.5	10.0
Potatoes	,,	82.1	106.5	112.0	162.7	133.8	210.1	135.4
Vegetables	,,	30.0	28.3	24.9	37.9	22.6	13.7	30.7
Fruit and Fruit Products	,,	11.5	7.3	6.9	6.5	4.1	2.1	7.1
Sugar	,,	12.9	9.4	11.9	11.6	12.0	9.6	11.6
Preserves	,,	4.3	4.6	5.0	4.7	5.0	2.4	4.5
Miscellaneous (*e*) ..	,,	0.6	0.8	0.5	0.3	0.3	0.9	0.5

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and food, etc.

TABLE 10.—AVERAGE EXPENDITURE ON FOODS PER DIET-HEAD WEEKLY IN FAMILIES IN DIFFERENT AREAS OF IRELAND AND IN THE WHOLE COUNTRY.

COMMODITY GROUP	Dublin	Large Towns	Small Towns	Farming Families	Farm Labourers' Families	Congested Districts	Ireland
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	1 6	1 5	1 5	2 3	1 2	1 8	1 9
Eggs	1 0	1 1	1 3	1 9	0 11	1 0	1 4
Cheese	0 2	0 2	0 1	0 1	0 2	0 1	0 1
Fats (*a*)	1 3	1 3	1 5	2 0	1 4	1 1	1 7
Meat (*b*)	3 11	3 9	3 9	4 9	2 7	1 8	4 0
Fish	0 4	0 3	0 3	0 2	0 1	0 4	0 3
Flour and Bread	1 9	2 0	1 7	1 8	1 9	2 0	1 9
Other Cereals	0 9	0 7	0 6	0 8	0 4	0 5	0 7
Potatoes	0 10	0 10	1 1	1 6	1 3	1 5	1 2
Vegetables	0 8	0 7	0 6	0 7	0 4	0 3	0 7
Fruit and Fruit Products ..	0 8	0 5	0 5	0 4	0 3	0 1	0 5
Sugar	0 5	0 3	0 3	0 4	0 4	0 4	0 4
Preserves	0 3	0 4	0 5	0 5	0 5	0 2	0 4
Miscellaneous (*c*)	0 7	0 7	0 7	0 6	0 6	0 6	0 6
TOTAL EXPENDITURE	14 1	13 6	13 6	17 0	11 5	11 0	14 8

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 11.—AVERAGE DAILY INTAKE OF NUTRIENTS PER DIET-HEAD IN FAMILIES IN DIFFERENT AREAS OF IRELAND AND IN THE WHOLE COUNTRY.

	Animal Protein	Vegetable Protein	Total Protein	Fat	Carbohydrate	Calories	Calcium	Iron	Vitamin A	Carotene (Vitamin A potency)	Total Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
	gms.	gms.	gms.	gms.	gms.		mgms.	mgms.	i.u.	i.u.	i.u.	μgms.	mgms.	mgms.	i.u.
Dublin	39	49	88	100	358	2,685	941	18.8	3,195	458	3,653	1,690	2.0	17	978
Large Towns ..	36	54	90	95	397	2,804	1,006	19.3	2,850	533	3,383	1,826	2.1	17	1,131
Small Towns ..	36	49	85	88	400	2,734	1,117	16.8	2,526	517	3,043	1,740	2.2	15	1,161
Farming Families ..	49	62	111	119	499	3,516	1,705	21.6	3,334	586	3,920	2,423	3.1	19	1,786
Farm Labourers' Families	30	54	84	78	428	2,745	1,128	17.2	2,045	371	2,416	1,815	2.0	15	1,227
Congested Districts ..	37	79	116	75	559	3,375	1,812	23.8	2,108	308	2,416	2,614	3.3	23	1,760
Ireland	42	57	99	102	446	3,105	1,369	19.9	2,956	515	3,471	2,089	2.6	18	1,433

APPENDICES

Appendix I.	Dietary Survey of families of unemployed persons and pensioners.
Appendix II.	Dairy Products.

APPENDIX I

Dietary Survey—Families of unemployed persons and pensioners.

Scope of Survey.

In the five reports of the National Nutrition Survey already published, results of dietary surveys have been reported which apply to samples of families broadly representative of the total population of the country. During the course of these surveys, however, a number of families was encountered, the heads of which were unemployed persons, widows with pensions or old-age pensioners, whose economic circumstances might be expected to be unduly precarious. It was thought that it might be of interest to collect together the results from these families and to segregate them in a separate appendix. It may be emphasised that these families have already been included in the calculations made on the various population groups in which they were encountered, and that they are, therefore, not additional to the totals of families already reported.

These families occurred with varying frequency in the several sections of the population examined. In Dublin they comprised exactly 20 per cent. of the whole sample, in other large towns 21.6 per cent , in small towns 16.5 per cent., and in the farming community 6.4 per cent. The families of farm workers and those examined in the Congested Districts were regarded as poor families by any standard, and consequently do not re-appear in this Appendix.

Since the status of the head of the household was the governing factor in determining the inclusion or otherwise of any particular family in this group, it does not necessarily follow that such a family was economically badly off in every case. For example, if the head of the household were an old-age pensioner, it would of course be possible for him to have living with him sons or daughters who were earning independent incomes and were subscribing to the family budget.

Method.

The methods were of course those used for the whole section in which each group of these special families occurred. The technique was described fully in the first Report (on Dublin city), as were also certain technical terms. The questions of waste and of the calculations made to produce the various tabular results were also dealt with in detail in that Report. In the later Reports, apart from a brief statement of the methods used, only modifications of the original technique were described in any detail.

Briefly, when a family was surveyed, a record was obtained of all food used in the household and its cost during one complete week, and this, together with certain other information collected, such as the number, age, sex and occupation of all the members of the household, formed the basis for calculating the results.

The only classification used in these families is one based on the status of the head of the household.

In the earlier Reports, information was included as to rationed foods, level of flour extraction, and other matters which varied from time to time over the whole period of survey. Since the examination of the special families was taking place throughout the whole survey, it has not been considered necessary to repeat such information here ; the reader is referred to the appropriate earlier Report. Similarly, the arguments as to reliability of results put forward in previous Reports apply with equal force to the families now under discussion.

Tables.

The tabular presentation of the results is the same in each group of these families, and adheres to the pattern of previous Reports as follows :—

(1) Composition of samples (Tables 1A, 1B, 1C and 1D),

(2) Consumption of various groups of foods (Tables 2A, 2B, 2C and 2D),

(3) Expenditure on the same groups of foods (Tables 3A, 3B, 3C and 3D),

(4) Standards of requirements adopted (Table 4),

(5) Intake of nutrients (Tables 5A, 5B, 5C and 5D), and

(6) Intake of nutrients as a percentage of estimated requirements (Tables 6A, 6B, 6C and 6D).

EXPLANATORY NOTES.

In all the tables which follow, the symbol "–" has been used to mean none, and " 0 " or " 0.0 " to mean an insignificant amount.

It is proposed to compare the various tables relating to these families with the parent groups of families from which they were derived. Thus, the special families from the Dublin, large town and small town samples respectively, will be considered in relation to the results published in Parts I and III of the National Nutrition Survey, which dealt with families living in such areas. Similarly those families derived from the farming group will be compared with the farming families generally, of which the results have been published in Part IV of the National Nutrition Survey. In this way, all urban special families will be examined in comparison with urban families generally, and a like comparison will be made in the case of the farming community.

Composition Tables.

Tables 1A, 1B and 1C show the composition of special families living in Dublin, other large towns, and small towns respectively. In a few cases, the families making up one of the sub-groups into which the totals have been divided came to less than 10 in number, and, according to the rule followed in the parent groups, should have been discarded as unrepresentative. In view of the small total numbers, however, this arbitrary rule was somewhat relaxed.

In each area, the average size of the families was somewhat smaller than that of the families of the parent group. The largest families were encountered in the recently unemployed group, and the smallest usually in the old-age pensioner group.

Consumption Tables.

Tables 2A, 2B and 2C show the average weekly consumption per diet-head of the various groups of foods. Although there are of course some differences between the three tables, and although the pattern of consumption seems to change somewhat from Dublin to the other towns, there is nevertheless a correspondence in the three areas. The average consumptions of all the families together stood at a consistently lower level than those of the parent groups, but within each table, it is at once evident that the families responsible for these reduced averages were the unemployed families, with the balance slightly in favour of those unemployed for a shorter period. Thus the unemployed groups in each area showed a more or less close similarity to the groups of families in urban areas generally whose expenditure on food was below 10s. per diet-head per week. Similarly the groups of widows' families seemed to correspond roughly with the food expenditure groups in the urban samples generally spending from 10s. to 15s. per diet-head weekly, while the families of old-age pensioners seemed to fare best of all, probably because of the reason stated earlier that more than one person in the family may have been earning.

Expenditure Tables.

In the next set of tables, 3A, 3B and 3C, the consumptions shown in the tables just considered are reflected in terms of money. In each area the expenditure of these families was significantly below that of the area generally, and the same distribution of this average cost amongst the three types of special families was discernible, as that which appeared in the consumption tables.

In the urban tables in this Appendix taken together, the consumptions and expenditures of the families of old-age pensioners are seen usually to exceed the *averages* obtaining in urban areas generally.

Intake and Requirement Tables.

The intakes of the various nutrients and of calories are shown in tables 5A, 5B and 5C, and it will be sufficient to consider in detail only the figures relating to calories, protein, calcium and vitamin A. The unemployed groups again stood out as the least satisfactory. As regards calorie intake, these families corresponded more or less closely with the lowest food expenditure groups in the parent sections ; there are, however, some exceptions, as in the " unemployed less than 3 months " group in large towns, where the calorie intake was quite high. The intake of protein of the unemployed groups followed the same general pattern, and it is interesting here to note the low proportion of animal protein included in the total. The calcium figures again were lowest in the unemployed families, probably reflecting the low milk consumption by these groups shown in tables 2A, 2B and 2C. Intakes of vitamin A were irregular—in the " unemployed less than 3 months " group, the figure was not unsatisfactory in Dublin and other large towns ; in the " unemployed more than 3 months " groups in these towns, and in both unemployed groups in small towns, it was low. In small towns, the unemployed families fared worse, as regards vitamin A intake, than in any of the other urban communities ; the explanation lay partly in their smaller consumption of butter, but mainly in the fact that, of their total milk consumption, as much as 25 per cent. was of skimmed milk (which contains little or no vitamin A), compared with only 4 per cent. in Dublin.

As regards intake of the four items under discussion, the families of widows with pensions occupied mainly an intermediate position between unemployed families and those of old age pensioners. The intakes of these last were usually as large as, and in many cases larger than those of the corresponding urban families generally.

The tables numbered 6A, 6B and 6C show the intakes of nutrients by these families, expressed as percentages of estimated requirements. Again the unemployed groups seemed to correspond with the lower food-expenditure groups in urban families generally, though in large towns the position amongst them seemed inexplicably favourable. The old age pensioners group are seen to have had almost completely satisfactory figures and the families of widows with pensions tend to lie midway between the unemployed and old-age pensioner groups. The families as a whole appeared to have inadequate intakes of calcium and of vitamin A—the position improving as regards calcium as the towns became smaller, and the reverse being so in the case of vitamin A.

Since the calorie *requirements* of old-age pensioners are smaller than those of other persons, it would be reasonable to assess the percentages of requirements given in the " Calories " columns in tables 6A, 6B and 6C as somewhat higher than appears in the tables.

Farming Families.

Among farming families (table 1D, 2D, 3D, 5D and 6D), special families occurred only where the head of the household was a widow with pension or an old age pensioner. There were 61 such families in the group altogether of which 13 were those of widows with pensions, and 48 those of old-age pensioners. The average size of family (table 1D) was 3.7 compared with 4.9 in the farming group as a whole.

The consumption of various groups of food by these special families is shown in table 2D and it is evident that, though on the whole it was somewhat less than that of the farming families generally, who have already been reported as taking excellent diets, the differences were not substantial except in the case of meat. The groups of special families resembled the lower two " valuation " groups of the farming families, *i.e.*, those living on farms in which the Poor Law Valuation of the agricultural land per head amounted to less than £4. Total expenditure per head weekly on food came to 14s. 5d. (table 3D) compared to 17s. in the farming families generally. Expenditure on meat accounted for 23 per cent. of the total (28 per cent. in farming families), milk for 14 per cent. (13 per cent. in farming families), bread and flour for 13 per cent. (10 per cent. in farming families) and eggs for 10 per cent. in both cases.

The intake of nutrients shown in table 5D indicates that protein was supplied in these families to the same amount as in farming families generally, but that the proportion of animal protein was slightly less. The intake of calories at 3,520 per diet-head daily was almost exactly the same as the figure of 3,516 in farming families generally, and the calcium intake too, at 1,754 mgms. per diet-head daily compared favourably with the general "farming families" figure of 1,705.

The intake stated as a percentage of estimated requirements is given in table 6D. In no case did the figure fall as low as 100 per cent. and in general, all the nutrient and calorie requirements were amply provided.

It is evident that, on the whole, the special families of the farming community fared practically as well as did the farming families themselves. This is in keeping with what one might expect, because the fact of the head of the household being a widow or an old-age pensioner would not be likely to reduce the economic standing of the family as it would in urban areas, the farm being the basis of the economy in such cases.

SUMMARY.

1.—A food survey of 317 special families was made between April, 1946, and September, 1948, as part of a food survey of much larger numbers of families. The results relating to the larger groups have already been published in Parts I to V of the National Nutrition Survey. The special families were those whose economic position was likely to be unduly precarious on account of unemployment, widowhood, etc. of the head of the household; these families were included in the reports already published of the parent groups of families from which they were derived.

2.—The consumption of such foods as milk and meat was lowest in the "unemployed" groups, and rose considerably in the "widows" and "old-age pensioners" groups, being highest in the last named.

3.—There was a general shortage of calcium and of vitamin A, and in small towns, the intake of calories by certain unemployed groups included some values that might be regarded as unsatisfactory.

TABLE 1A.—AVERAGE COMPOSITION OF 100 SPECIAL FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

Family Composition	Status of Head of Family				
	Unemployed 3 months or less	Unemployed more than 3 months	Widow with Pension	Old Age Pensioner	All Families
Total number of families	9	38	34	19	100
Total number of persons	46	193	148	54	441
Total number of diet-heads	44.1	189.2	146.9	52.9	433.1
Children 0–14 per family	2.3	1.8	1.7	0.2	1.5
Children 15–16 per family	0.1	0.3	0.1	—	0.1
Other persons per family	2.7	3.0	2.6	2.7	2.8
Total persons per family	5.1	5.1	4.4	2.9	4.4
Percentage distribution of families ..	9.0	38.0	34.0	19.0	100

TABLE 1B.—AVERAGE COMPOSITION OF 71 SPECIAL FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

Family Composition	Status of Head of Family				
	Unemployed 3 months or less	Unemployed more than 3 months	Widow with Pension	Old Age Pensioner	All Families
Total number of families	8	27	15	21	71
Total number of persons	57	188	64	95	404
Total number of diet-heads	57.0	184.1	63.5	94.8	399.4
Children 0–14 per family	3.4	3.7	1.2	0.8	2.3
Children 15–16 per family	0.1	0.3	0.1	0.0	0.2
Other persons per family	3.6	3.0	3.0	3.7	3.2
Total persons per family	7.1	7.0	4.3	4.5	5.7
Percentage distribution of families ..	11.3	38.0	21.1	29.6	100

TABLE 10.—AVERAGE COMPOSITION OF 85 SPECIAL FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

Family Composition	Status of Head of Family				
	Unemployed less than 3 months	Unemployed 3 months or more	Widow with Pension	Old Age Pensioner	All Families
Total number of families	10	26	20	29	85
Total number of persons	83	201	86	115	485
Total number of diet-heads	83.0	200.8	92.7	113.1	489.6
Children 0–14 per family	4.2	3.7	0.9	0.8	2.1
Children 15–16 per family	0.7	0.2	0.2	0.1	0.2
Other persons per family	3.4	3.8	3.2	3.1	3.4
Total persons per family	8.3	7.7	4.3	4.0	5.7
Percentage distribution of families ..	11.8	30.6	23.5	34.1	100

TABLE 1D.—AVERAGE COMPOSITION OF 61 SPECIAL FARMING FAMILIES CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

FAMILY COMPOSITION	STATUS OF HEAD OF FAMILY		
	Widow with Pension	Old Age Pensioner	All Special Families
Total number of families	13	48	61
Total number of persons	58	166	224
Total number of diet-heads	54.4	165.9	220.3
Children 0–14 per family	0.1	0.3	0.3
Children 15–16 per family	0.2	0.0	0.1
Other persons per family	4.2	3.1	3.3
Total persons per family	4.5	3.4	3.7
Percentage distribution of families	21.3	78.7	100

TABLE 2A.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 100 SPECIAL FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

Commodity Group	Unit of Quantity	Status of Head of Family				
		Unemployed 3 months or less	Unemployed more than 3 months	Widow with Pension	Old Age Pensioner	All Families
Milk (*a*)	Pints	3.3	3.5	4.5	5.2	4.0
Cheese	Oz.	0.2	0.8	0.6	1.1	0.7
Eggs	Number	2.7	2.3	3.5	4.0	3.0
Fats (*b*)	Oz.	9.2	8.8	10.4	9.9	9.5
Meat (*c*)	,,	21.7	21.8	31.6	43.1	27.7
Fish	,,	3.2	3.5	4.7	5.1	4.0
Flour and Bread (*d*)	,,	76.6	72.6	75.2	75.9	74.3
Other Cereals	,,	3.6	2.2	8.4	5.5	4.9
Potatoes, including Chips	,,	86.9	71.3	79.8	84.7	77.4
Vegetables	,,	17.7	16.4	25.7	29.6	21.3
Fruit and Fruit Products	,,	1.4	3.7	7.8	5.6	5.1
Sugar	,,	11.7	12.3	12.8	13.2	12.5
Preserves	,,	4.1	2.5	2.7	3.1	2.8
Miscellaneous (*e*)	,,	0.3	0.5	0.4	1.3	0.6

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 2B.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 71 SPECIAL FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

COMMODITY GROUP	Unit of Quantity	STATUS OF HEAD OF FAMILY				
		Unemployed 3 months or less	Unemployed more than 3 months	Widow with Pension	Old Age Pensioner	All Families
Milk (*a*)	Pints	3.0	3.8	3.6	4.7	3.9
Cheese	Oz.	0.1	0.6	1.4	1.4	0.9
Eggs	Number	2.1	0.7	2.0	2.6	1.5
Fats (*b*)	Oz.	10.5	7.5	7.3	9.3	8.3
Meat (*c*)	,,	23.2	15.8	24.8	34.9	22.8
Fish	,,	—	1.8	2.3	2.2	1.7
Flour and Bread (*d*)	,,	105.2	90.1	93.0	88.8	92.4
Other Cereals	,,	2.7	3.8	5.3	9.6	5.3
Potatoes, including Chips	,,	107.4	95.1	94.6	128.9	104.8
Vegetables	,,	26.4	14.6	21.7	30.3	21.2
Fruit and Fruit Products	,,	1.0	1.4	1.8	2.1	1.5
Sugar	,,	8.0	8.7	9.3	8.5	8.6
Preserves	,,	2.5	2.1	3.7	3.0	2.6
Miscellaneous (*e*)	,,	0.7	0.7	0.9	0.5	0.7

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 2C.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 85 SPECIAL FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

COMMODITY GROUP	Unit of Quantity	STATUS OF HEAD OF FAMILY				
		Unemployed less than 3 months	Unemployed 3 months or more	Widow with Pension	Old Age Pensioner	All Families
Milk (*a*)	Pints	3.9	3.4	4.6	7.6	4.7
Cheese	Oz.	0.2	0.2	0.5	0.9	0.5
Eggs	Number	1.0	1.7	3.8	4.8	2.7
Fats (*b*)	Oz.	7.9	6.6	10.3	7.1	7.7
Meat (*c*)	,,	14.6	11.0	25.3	20.9	16.6
Fish	,,	1.2	2.0	1.6	3.0	2.0
Flour and Bread (*d*)	,,	80.0	75.5	92.5	77.3	79.9
Other Cereals	,,	2.2	2.9	4.2	4.4	3.4
Potatoes, including Chips	,,	109.3	95.7	117.0	100.4	103.1
Vegetables..	,,	17.2	9.7	14.6	22.9	15.0
Fruit and Fruit Products	,,	1.5	0.7	1.8	4.4	1.9
Sugar	,,	10.8	11.1	12.2	11.2	11.3
Preserves	,,	3.7	2.5	5.5	4.2	3.7
Miscellaneous (*e*)	,,	0.2	0.1	0.0	0.2	0.1

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 2D.—AVERAGE CONSUMPTION PER DIET-HEAD WEEKLY OF FOODS IN 61 SPECIAL FARMING FAMILIES, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

COMMODITY GROUP	Unit of Quantity	STATUS OF HEAD OF FAMILY								
		WIDOW WITH PENSION			OLD AGE PENSIONER			ALL SPECIAL FAMILIES		
		Bought and Free	Home Won	Total	Bought and Free	Home Won	Total	Bought and Free	Home Won	Total
Milk (*a*)	Pints	0.8	7.1	7.9	0.4	8.9	9.3	0.5	8.4	8.9
Cheese	Oz.	1.5	—	1.5	0.7	—	0.7	0.9	—	0.9
Eggs	Number	0.2	4.4	4.6	0.5	5.5	6.0	0.4	5.2	5.6
Fats (*b*)	Oz.	7.9	3.5	11.4	7.6	4.9	12.5	7.7	4.6	12.3
Meat (*c*)	,,	21.3	5.7	27.0	17.1	6.1	23.2	18.1	6.0	24.1
Fish	,,	2.2	3.1	5.3	3.0	—	3.0	2.8	0.8	3.6
Flour and Bread (*d*)	,,	93.7	3.9	97.6	105.0	7.3	112.3	102.2	6.5	108.7
Other Cereals	,,	12.8	—	12.8	8.9	1.4	10.3	9.8	1.1	10.9
Potatoes, including Chips	,,	3.1	190.5	193.6	8.8	138.3	147.1	7.4	151.2	158.6
Vegetables	,,	4.3	29.9	34.2	3.1	24.1	27.2	3.4	25.5	28.9
Fruit and Fruit Products	,,	1.5	2.4	3.9	2.9	2.7	5.6	2.6	2.6	5.2
Sugar	,,	11.7	—	11.7	11.1	—	11.1	11.2	—	11.2
Preserves	,,	6.1	—	6.1	4.4	0.1	4.5	4.8	0.1	4.9
Miscellaneous (*e*)	,,	0.5	—	0.5	0.3	—	0.3	0.3	—	0.3

(*a*) All forms stated as liquid milk.
(*b*) Including butter, margarine, suet, lard, etc.
(*c*) Including beef, mutton, pork, bacon, poultry and offals.
(*d*) Expressed as flour.
(*e*) Items such as cocoa, sauces, patent drinks and foods, etc.

TABLE 3A.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 100 SPECIAL FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

COMMODITY GROUP	STATUS OF HEAD OF FAMILY				
	Unemployed 3 months or less	Unemployed more than 3 months	Widow with Pension	Old Age Pensioner	All Families
	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	0 11	0 11	1 3	1 6	1 1
Cheese	0 0	0 1	0 1	0 2	0 1
Eggs	0 8	0 6	0 10	0 11	0 8
Fats (*a*)	1 3	1 2	1 4	1 4	1 3
Meat (*b*)	2 4	2 1	3 4	4 2	2 9
Fish	0 2	0 2	0 3	0 5	0 3
Flour and Bread	1 9	1 9	1 10	1 9	1 9
Other Cereals	0 2	0 1	0 7	0 6	0 4
Potatoes, including Chips ..	0 9	0 8	0 9	0 9	0 9
Vegetables	0 5	0 4	0 7	0 7	0 6
Fruit and Fruit Products ..	0 1	0 2	0 5	0 4	0 3
Sugar	0 4	0 4	0 4	0 5	0 4
Preserves	0 3	0 2	0 2	0 3	0 2
Miscellaneous (*c*)	0 5	0 6	0 6	1 0	0 7
TOTAL EXPENDITURE ..	9 6	8 11	12 4	14 1	10 9

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 3B.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 71 SPECIAL FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

COMMODITY GROUP	STATUS OF HEAD OF FAMILY				
	Unemployed 3 months or less	Unemployed more than 3 months	Widow with Pension	Old Age Pensioner	All Families
	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	0 9	0 11	1 1	1 4	1 1
Cheese	0 0	0 1	0 2	0 2	0 1
Eggs	0 8	0 3	0 7	0 10	0 6
Fats (*a*)	1 6	1 0	1 0	1 3	1 2
Meat (*b*)	2 5	1 6	2 7	3 11	2 4
Fish	0 0	0 1	0 2	0 2	0 1
Flour and Bread	2 4	2 0	2 2	2 1	2 1
Other Cereals	0 2	0 2	0 4	0 5	0 3
Potatoes, including Chips ..	0 9	0 8	0 9	1 1	0 9
Vegetables	0 5	0 3	0 5	0 6	0 4
Fruit and Fruit Products ..	0 0	0 1	0 1	0 1	0 1
Sugar	0 3	0 3	0 4	0 3	0 3
Preserves	0 2	0 2	0 3	0 3	0 2
Miscellaneous (*c*)	0 5	0 5	0 6	0 5	0 5
TOTAL EXPENDITURE ..	9 10	7 10	10 5	12 9	9 7

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, coffee, cocoa, sauces, patent drinks and foods, etc.

TABLE 3C.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 85 SPECIAL FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

Commodity Group	Status of Head of Family				
	Unemployed less than 3 months	Unemployed 3 months or more	Widow with Pension	Old Age Pensioner	All Families
	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	0 10	0 9	1 1	1 5	1 0
Cheese	0 0	0 1	0 1	0 2	0 1
Eggs	0 4	0 6	1 1	1 5	0 9
Fats (*a*)	1 1	1 0	1 6	1 1	1 2
Meat (*b*)	1 8	1 4	3 1	2 8	2 1
Fish	0 2	0 1	0 2	0 3	0 2
Flour and Bread	1 7	1 6	1 11	1 6	1 7
Other Cereals	0 1	0 1	0 2	0 4	0 2
Potatoes, including Chips ..	1 0	0 10	1 1	1 0	1 0
Vegetables	0 4	0 2	0 4	0 5	0 3
Fruit and Fruit Products ..	0 2	0 1	0 2	0 2	0 1
Sugar	0 3	0 3	0 4	0 3	0 3
Preserves	0 4	0 2	0 5	0 4	0 4
Miscellaneous (*c*)	0 5	0 4	0 7	0 5	0 5
Total Expenditure ..	8 3	7 2	12 0	11 4	9 4

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, cocoa, coffee, sauces, patent drinks and foods, etc.

TABLE 3D.—AVERAGE EXPENDITURE PER DIET-HEAD WEEKLY ON FOODS IN 61 SPECIAL FARMING FAMILIES, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

COMMODITY GROUP	STATUS OF HEAD OF FAMILY								
	WIDOW WITH PENSION			OLD AGE PENSIONER			ALL SPECIAL FAMILIES		
	Bought	Home Won	Total	Bought	Home Won	Total	Bought	Home Won	Total
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Milk	0 1	1 9	1 10	0 1	2 1	2 2	0 1	2 0	2 1
Cheese	0 2	0 0	0 2	0 1	0 0	0 1	0 1	0 0	0 1
Eggs	0 1	1 1	1 2	0 2	1 6	1 8	0 1	1 5	1 6
Fats (*a*)	1 2	0 7	1 9	1 2	0 10	2 0	1 2	0 9	1 11
Meat (*b*)	2 10	0 9	3 7	2 4	1 0	3 4	2 5	0 11	3 4
Fish	0 2	0 1	0 3	0 2	0 0	0 2	0 2	0 0	0 2
Flour and Bread	1 9	0 1	1 10	1 10	0 1	1 11	1 10	0 1	1 11
Other Cereals	0 6	0 0	0 6	0 5	0 1	0 6	0 5	0 0	0 5
Potatoes, including Chips	0 0	1 9	1 9	0 1	1 3	1 4	0 1	1 0	1 1
Vegetables	0 1	0 5	0 6	0 1	0 5	0 6	0 1	0 5	0 6
Fruit and Fruit Products	0 1	0 1	0 2	0 3	0 2	0 5	0 2	0 2	0 4
Sugar	0 4	0 0	0 4	0 3	0 0	0 3	0 3	0 0	0 3
Preserves	0 6	0 0	0 6	0 4	0 0	0 4	0 4	0 0	0 4
Miscellaneous (*c*)	0 7	0 0	0 7	0 6	0 0	0 6	0 6	0 0	0 6
TOTAL EXPENDITURE ..	8 4	6 7	14 11	7 9	7 5	15 2	7 8	6 9	14 5

(*a*) Including butter, margarine, suet, lard, etc.
(*b*) Including beef, mutton, pork, bacon, poultry and offals.
(*c*) Items such as tea, cocoa, coffee, sauces, patent drinks and foods, etc.

TABLE 4.—RECOMMENDED DAILY REQUIREMENTS OF NUTRIENTS PER HEAD (LEAGUE OF NATIONS TECHNICAL COMMISSION).

AGE IN YEARS	Under 1 year	1–3 years	4–7 years	8–12 years	13–15 years	16–17 years	18–21 years	MALES			FEMALES		
								Sedentary work	Medium work	Heavy work	Sedentary work	Medium work	Pregnant or Lactating
Calories	800	1,100	1,500	2,100	2,900	3,000	3,000	2,500	3,000	4,500	2,500	3,000	3,000
Protein gms. ..	20	42	50	65	95	100	90	70	70	70	60	60	80
Calcium gms. ..	0.4	1.1	1.3	1.4	1.5	1.4	1.1	0.8	0.8	0.8	0.8	0.8	1.5
Iron mgms. ..	3.0	5.0	8.0	13.0	16.0	15.0	13.0	10.0	10.0	10.0	10.0	10.0	13.0
Vitamin A i.u. ..	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	5,000
Vitamin B_1 μgms. ..	360	495	675	945	1,305	900	900	900	900	900	750	750	1,800
[1]Riboflavin mgms. ..	0.6	0.9	1.1	1.6	2.1	2.3	2.4	1.9	1.9	1.9	1.5	1.5	3.0
[1]Niacin mgms. ..	4	6	7	11	14	16	16	13	13	13	11	11	23
[2]Vitamin C i.u. ..	600	600	600	600	600	600	600	600	600	600	600	600	900

[1] Recommendations in respect of riboflavin and niacin taken from National Research Council's (U.S.A.) scale.

[2] 20 i.u. Vitamin C=1 mgm.

TABLE 5A.—DAILY INTAKE OF NUTRIENTS PER DIET-HEAD OF 100 SPECIAL FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

Status of Head of Family	Animal Protein gms.	Vegetable Protein gms.	Total Protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.
Unemployed 3 months or less . .	25	47	72	75	334	2,299	661	14.9	2,685	278	2,963	1,524	1.5	16	547
Unemployed more than 3 months . .	27	43	70	71	312	2,166	668	15.1	2,135	184	2,319	1,401	1.5	14	625
Widow with pension . .	36	49	85	94	355	2,610	830	18.2	2,462	414	2,876	1,653	1.8	17	781
Old age pensioner	46	49	95	103	361	2,749	954	20.0	3,402	616	4,018	1,709	2.1	19	818
All families	32	46	78	83	335	2,401	757	16.8	2,457	325	2,782	1,536	1.7	16	694

TABLE 5B.—DAILY INTAKE OF NUTRIENTS PER DIET-HEAD OF 71 SPECIAL FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

STATUS OF HEAD OF FAMILY	Animal Protein gms.	Vegetable Protein gms.	Total Protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.
Unemployed 3 months or less ..	23	61	84	75	415	2,671	786	19.2	2,842	116	2,958	1,841	1.7	17	1,067
Unemployed more than 3 months ..	20	54	74	60	367	2,305	820	15.6	1,704	121	1,825	1,619	1.6	15	889
Widow with pension ..	27	55	82	72	388	2,526	851	17.7	2,289	382	2,671	1,712	1.7	16	1,015
Old age pensioner	36	58	94	97	413	2,899	1,029	19.7	2,117	636	2,753	2,021	2.1	18	1,335
All families ..	25	56	81	73	388	2,533	870	17.4	2,057	284	2,341	1,761	1.8	16	1,040

TABLE 5C.—DAILY INTAKE OF NUTRIENTS PER DIET-HEAD OF 85 SPECIAL FAMILIES LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

Status of Head of Family	Animal Protein gms.	Vegetable Protein gms.	Total Protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.
Unemployed less than 3 months ..	21	45	66	57	361	2,218	879	13.7	1,447	240	1,687	1,480	1.6	12	1,251
Unemployed 3 months or more	18	42	60	49	339	2,038	789	12.5	1,728	103	1,831	1,360	1.5	11	906
Widow with pension ..	30	52	82	84	420	2,763	999	16.4	2,265	294	2,559	1,734	1.9	14	1,002
Old age pensioner	38	44	82	76	384	2,546	1,315	14.6	2,154	336	2,490	1,648	2.3	13	1,163
All families ..	26	45	71	63	368	2,324	966	13.9	1,881	216	2,097	1,518	1.8	12	1,042

TABLE 5D.—DAILY INTAKE OF NUTRIENTS PER DIET-HEAD IN 61 SPECIAL FARMING FAMILIES, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

STATUS OF HEAD OF FAMILY	Animal Protein gms.	Vegetable Protein gms.	Total Protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgms.	Iron mgms.	Vitamin A i.u.	Carotene (Vitamin A potency) i.u.	Total Vitamin A i.u.	Vitamin B_1 μgms.	Riboflavin mgms.	Niacin mgms.	Vitamin C i.u.
Widow with pension ..	42	66	108	103	525	3,460	1,620	21.8	2,770	390	3,160	2,420	2.9	20	2,141
Old age pensioner	44	67	111	108	531	3,540	1,798	21.4	3,323	276	3,599	2,456	3.0	18	1,503
All Special families ..	44	67	111	107	529	3,520	1,754	21.5	3,187	305	3,492	2,447	3.0	18	1,660

TABLE 6A.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 100 SPECIAL FAMILIES IN DUBLIN, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

STATUS OF HEAD OF FAMILY	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Unemployed 3 months or less ..	108	100	60	141	95	167	89	132	88
Unemployed more than 3 months ..	104	92	64	142	76	163	87	124	100
Widow with pension	127	108	77	164	95	192	111	152	130
Old age pensioner	150	106	114	200	131	204	126	162	134
All families	118	100	73	156	91	178	100	139	114

TABLE 6B.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 71 SPECIAL FAMILIES LIVING IN LARGE TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

Status of Head of Family	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Unemployed 3 months or less . .	123	115	70	176	97	210	102	149	176
Unemployed more than 3 months . .	115	106	73	150	60	191	99	140	147
Widow with pension	123	102	80	162	89	205	105	142	169
Old age pensioner	143	117	113	193	92	245	126	156	222
All families	124	109	82	166	77	208	107	146	172

TABLE 6C.—DAILY INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF NUTRIENTS IN 85 SPECIAL FAMILIES, LIVING IN SMALL TOWNS, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

STATUS OF HEAD OF FAMILY	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Unemployed less than three months . .	101	103	77	129	56	175	98	112	208
Unemployed three months or more . .	87	86	70	112	61	154	87	91	151
Widow with pension	116	98	100	146	85	197	109	114	167
Old age pensioner	127	101	141	144	83	199	139	115	194
All families	104	95	91	128	70	176	105	104	173

TABLE 6D.—NUTRIENT INTAKE (AS PERCENTAGE OF REQUIREMENTS) OF 61 SPECIAL FARMING FAMILIES, CLASSIFIED ACCORDING TO STATUS OF HEAD OF FAMILY.

STATUS OF HEAD OF FAMILY	Protein	Calories	Calcium	Iron	Vitamin A	Vitamin B_1	Riboflavin	Niacin	Vitamin C
Widow with pension	150	110	174	199	105	277	155	156	356
Old age pensioner	169	119	211	212	120	296	174	150	251
All Special Families	164	116	201	209	116	291	169	151	277

APPENDIX 2.

DAIRY PRODUCTS.

Milk.

One very definite conclusion which emerges from the whole survey is that in large families in Ireland, apart from the farming community, not enough milk is consumed. The value of milk as a food has been much emphasised in recent years. It contains a satisfactory concentration of animal protein of high biological value, and in addition, is the chief source of calcium in the diet. Further, it provides both protein and calcium at a relatively low cost.

The table which follows has been calculated to show the effect of increasing size of family on milk consumption in the various population groups into which the 2,693 families comprising the total survey were divided. Reference may be made to the Report on Dublin City (p. 14) for the basis of the standards of requirement adopted for the purpose. These standards were that children up to 14 years should receive 1.5 pint daily and from 15 to 20 years 1 pint daily; that nursing and expectant mothers required 2 pints daily, and that the allowance for other adults should be 0.5 pint daily.

Percentages which actual consumptions of milk represent of milk requirements in families of different sizes in Dublin, other large towns, small towns, Congested Districts, farming families and farm workers' families :—

	Number of Persons in Family					
	1 or 2 persons	3 or 4 persons	5, 6 or 7 persons	8, 9, 10 or 11 persons	Over 11 persons	All families
Dublin	151	98	70	49	—	74
Other large towns	172	96	70	58	41	65
Small towns ..	203	128	81	63	54	73
Congested Districts (Autumn) ..	371	282	153	122	—	184
Congested Districts (Spring) ..	189	145	90	54	—	95
Farming families ..	303	223	162	122	128	167
Farm workers' families ..	211	107	80	55	—	75

The main feature of the table is that the consumption of milk was generally low. Farming families and those living in the Congested Districts proved exceptional in this regard, but if these families are omitted, it is apparent that in urban families and the families of farm workers, the consumption of milk fell substantially below a reasonable standard of adequacy. In general, the requirements of milk were taken by these groups of families only to the extent of about 75 per cent., while in large towns apart from Dublin, this figure fell as low as 65 per cent. But it is evident that amongst all these families, the larger families were seriously short, and it was only the high consumption in the smaller families which maintained the average consumption even at the figures quoted. Apparently, as soon as the number in the family exceeded four persons, the consumption of milk per person fell below the standard recommended allowance in all urban and farm workers' families, falling lower and lower as the number of persons in the family increased. The lowest figure was found in families of over 11 persons in large towns other than Dublin, where the milk consumption amounted to only 41 per cent. of estimated requirements.

Cheese.

The consumption of cheese was low throughout the whole sample of 2,693 families. In any one of the groups of families examined, whether in Dublin or other towns, or in rural areas, the average consumption per head weekly did not much exceed 1 ounce. Cheese is relatively cheap, and, like milk, is a valuable source of protein and calcium. It also contains some of the fat-soluble vitamins A and D from the milk fat used in its manufacture. Finally it is a compact source of energy in the sense that small quantities of it provide relatively large numbers of calories.

(1458).J3777.Wt.1965/1687.3.1000.11/50.W.P.W.Ltd.2

AN ROINN SLÁINTE
Department of Health

NATIONAL NUTRITION SURVEY
Part VII

CLINICAL SURVEY

DUBLIN:
PUBLISHED BY THE STATIONERY OFFICE.

To be purchased directly from the
GOVERNMENT PUBLICATIONS SALE OFFICE,
G.P.O. ARCADE, DUBLIN
or through any Bookseller.

(Pr. 804) *Price: Three Shillings and Sixpence*

Printed by
WOOD PRINTING WORKS, LIMITED
WOLFE TONE STREET, DUBLIN

FOREWORD

This report is the seventh and last of the series in which the results of the National Nutrition Survey have been presented. The first six reports dealt with the results of the dietary survey, the first five being devoted to particular areas of the country and the sixth to certain exceptional families and the country as a whole.

This final report presents the results of the clinical survey.

An Roinn Slainte,
Iúl, 1952.

CONTENTS

PAGE

Foreword 3

Clinical survey 7

General conclusions 10

Summary 21

Index to tables 25

Diagrams 69

Statistical appendix 81

NATIONAL NUTRITION SURVEY

CLINICAL SURVEY

The National Nutrition Survey carried out in Ireland in the period 1946–48 consisted of a dietary investigation of pre-determined numbers of families in various groups of the population and in various parts of the country, and also of a survey of the clinical state of certain defined population groups. In both sections, a certain bias was deliberately introduced in that a disproportionate amount of attention was directed to the poorer sections of the community. It was not found possible to investigate in the clinical survey as broadly representative a sample as was covered in the dietary survey, and therefore this portion of the survey does not supply information relating to the population as a whole.

The results of the various parts of the dietary investigation have been already published ; this report contains the results of the clinical survey.

The clinical survey was especially directed towards those groups of the population generally regarded as " vulnerable " in the nutritional sense, that is, those in whom nutritional defects might be expected to be most readily discernible, namely, primary school-children, adolescents and expectant and nursing mothers.

The clinical survey itself fell into two parts, namely, a clinical assessment of the nutritional state by a medical investigator specially trained in this work, and a survey of heights and weights. The heights and weights were recorded for school-children and adolescents only.

Since the dietary and clinical surveys were intended to be complementary to each other, the selection of areas to be visited was made on the same basis in both surveys.

In collaboration with the Central Statistics Office, the numbers of school-children selected in each area were so arranged as to be roughly proportional to the populations in these areas ; as the survey progressed, however, it became necessary for administrative reasons to curtail the size of the rural sample, the number actually examined being about 70 per cent. of the number originally intended. The term " Rural Areas " was held to cover all parts of the country after Large and Small Towns (as defined in the National Nutrition Survey, Part III) had been dealt with. Thus many smaller towns were included with the " rural " sample.

As regards the remaining two groups of adolescents and of expectant and nursing mothers, it was not found possible to survey any considerable numbers of these except in Dublin City. In addition, it was much more difficult than it had been in the case of school-children to secure large numbers of adolescents and expectant and nursing mothers for examination. Care must be taken in the interpretation of the figures given in the tables which relate to adolescents and mothers on account of the small numbers in each sample, and therefore the still smaller numbers in each of the groups into which the samples have been divided. In the result, 14,835 primary school-children were examined, while the sample of adolescents amounted to 570, and that of expectant and nursing mothers to 320.

In the selection of the samples, the school-children were selected from areas corresponding with those covered by the antecedent dietary survey, namely, Dublin City, Large and Small Towns, Rural Areas and the Congested Districts. The selection of the wards in Dublin was made so that an undue proportion of poorer class areas was included (see National Nutrition Survey, Part I). The "Congested Districts" are specific rural areas which were fully defined and described in the National Nutrition Survey, Part II. In each area, the sample was more or less equally divided between boys and girls, and, as far as possible, each year of age was adequately represented. The particulars recorded for each child were the age, the occupation of the father, the number of children in the family, and (in rural areas) the size of the agricultural holding of the father. In the Congested Districts no occupational classification was adopted, but the children were examined at two seasons, namely, Autumn and Spring (see National Nutrition Survey, Part II). The occupations were at a later stage grouped together into broad classes such as unskilled manual workers, including general labourers and the like, skilled manual workers such as carpenters, masons, etc., and lower paid professional and "white-collar" workers, such as clerks, teachers and so on. A man was grouped as "unemployed" who merely described himself as such on a form which the child took home for completion by the parent. It is realised that a farm labourer is very far from being accurately described as an "unskilled" manual worker, but the object of the classification was to divide the sample into *social* groups, and it was felt that such a worker did in fact correspond in this sense to the unskilled manual worker of the town. For the sake of completeness only, children were grouped together whose fathers were deceased; these children, of course, were representative of different social groups, and therefore the figures relating to them represent an average of all the social groups.

The selection of adolescent boys and girls was limited to Dublin City, and the sample consisted of those whose ages were 17, 18 or 19 years. Workers were sought who were employed at either clerical or factory work, and in the latter case, a distinction was made between those who had to undergo a medical examination before being engaged and those who did not. These two groups have been described in the following tables as "selected" and "unselected," respectively. The particulars recorded for adolescents were sex and age, the occupation followed by the adolescent (subsequently grouped as described above), and the number of children in the family. Various firms and employers in Dublin co-operated in the work, and this co-operation, as well as that of the workers themselves in submitting to examination, was much appreciated and was in fact essential to the completion of the survey.

Expectant and nursing mothers were drawn entirely from those attending for free treatment at Dublin Corporation Maternity and Child Welfare Clinics and at clinics attached to the Dublin Maternity

Hospitals. The particulars noted were the occupation of the husband (subsequently grouped as above), the " parity" of the wife (i.e., the number of pregnancies) and the number of children in the family.

In the recording of height and weight, the conditions were kept uniform throughout. Among school-children, boys were measured and weighed wearing trousers and stockings, girls wearing vests, knickers and stockings. For adolescents, the recording was done without jackets, cardigans or shoes.

It will be noted that where a group of children or of adolescents amounted to less than 10 individuals, the average height and weight of the group have not been given. This number was chosen arbitrarily on the grounds that a smaller number could not be regarded as representative. Amongst the school-children, the average size of the group in each single year of age was about 28, varying from zero to over 100. It is realised that groups consisting throughout of numbers much larger than 10 would have been preferable, but the examination of sufficient numbers of individuals to enable this to be done consistently would have been a most onerous, if not an impossible undertaking. That many of the sample means in the tables are subject to large sampling errors is indicated by the large figures recorded as the standard deviations of the means (see Appendix).

A Medical Officer, specially employed for the work, underwent a period of training in Great Britain by arrangement with the Ministry of Health ; he took part there in similar work then in progress, and worked in various parts of England with a Ministry of Health team, observing and practising the techniques and methods employed. In general, the method of assessment of nutritional state adopted was that introduced in Great Britain during the War by Professor V. P. Sydenstricker ; it consisted of recording certain clinical signs held to be indicative of defective nutrition, together with a record of the clinical judgment of the examiner of the state of nutrition found.

The full list of these clinical signs was as follows :—

Pityriasis
Folliculosis
Cheilosis
Angular stomatitis
Enlarged tongue papillae
Glossitis
Atrophic tongue papillae
Red denuded tongue
Geographical tongue
Gingivitis
Pyorrhoea
Mottling of teeth
Blepharitis
Corneal vascularisation
Loss of vibratory sense
Lethargy
Poor posture
Abnormal back furrow
Subnormal muscle development
Subnormal muscle tone
Subnormal hand grip
Poor co-ordination
Diminished subcutaneous fat
Excess of subcutaneous fat
Skin pallor
Skin, loss of elasticity
Skin, abnormal pigmentation
Skin, lacks gloss
Abnormal hair
Abnormal nails
Mucous membrane pallor
Mucous membrane, abnormal texture
Poor circulation in limbs
Goitre

It was considered that, in school-children in this country, rickets might be added, and that the complete list could reasonably be reduced to the following :—

Gingivitis
Subnormal muscle development
Subnormal muscle tone
Subnormal hand grip
Diminished subcutaneous fat
Excess subcutaneous fat
Mucous membrane pallor
Goitre
Evidence of rickets

As regards both adolescents and expectant and nursing mothers, goitre, rickets and excess of subcutaneous fat were omitted, and certain other signs introduced, as it must be admitted, somewhat arbitrarily. These additional signs were :—

Folliculosis
Mottled teeth
Poor posture
Skin, lacks gloss

The state of nutrition was recorded under one of three heads arbitrarily chosen, namely, "good," "fair" and "poor," and its assessment was made as a result of the total impressions gained by the examiner. No biochemical examinations were made. While it is obvious that subjective estimations of this kind are necessarily liable to unconscious variation from time to time, the employment of the same examiner throughout reduced this source of error.

GENERAL CONCLUSIONS

Heights and Weights : School-Children.

(1) *Classification by area of residence, occupational group of father, and by age and sex.*

Tables 1A and 1B show, for the town areas of the State, the mean heights and weights (plus or minus standard deviations of the means) of boys and girls, classified according to age and to the occupational group of the father. The general trend of the figures for each area indicates that the heights and weights of the children of skilled manual workers are greater than those of the children of unskilled workers, and that children of the lower professional class show greater heights and weights than children in the other groups. The unemployed group shows generally the lowest figures for both height and weight. The reason that the unskilled workers' group is most frequently used in this report as a standard for comparison in preference to the unemployed group is that the numbers of persons in the unemployed group are much smaller than in the unskilled group, and that therefore the mean heights and weights in the unemployed group are, in general, less reliable.

The differences noted in the mean heights and weights between different groups may be due merely to sampling variations, or to actual differences in the populations from which the various samples have been derived. This matter is discussed in the Appendix, where it is shown that the differences between the occupational groups are in fact due to actual differences in the populations represented by the samples.

In order to determine mean heights and weights for all occupational groups in tables 1A and 1B, the means at each year of age were multiplied by the populations in town areas in the respective occupation groups, the products were aggregated and divided by the total population in town areas. An examination of the tables for variation between town areas shows that there is no definite trend in the figures ; the mean heights and weights of boys in Dublin, however, are slightly less than those of boys in other town areas, but the same relationship does not exist in the case of girls.

An examination of the tables for variation between different town areas shows no very definite trend, although in the unskilled and skilled workers groups the heights and weights in Dublin are slightly less than in other town areas. The town areas have therefore been amalgamated, and the mean heights and weights for all town areas are shown in tables 2A and 2B and in diagrams IA, IB, IIA and IIB. It is evident from the diagrams that the mean heights and weights of children are greater in the better-off population groups. It is most unlikely that the differences between the classes shown in the diagrams could have arisen in random sampling, and it is reasonable to draw the conclusion that there is a variation in height and weight with social class in the children of the town populations. The difference in mean heights between the children in the unemployed and lower professional groups at corresponding ages amounts to about 2 inches in both sexes, while the corresponding difference in mean weights is about 4 or 5 pounds.

In rural areas, variations in average height and weight between different occupational groups are less marked than in town areas. The figures for rural areas are shown in tables 3A and 3B, while diagrams IIIA and IIIB, IVA and IVB show the variation in height and weight with age for the three main occupational groups in the rural areas, namely, unskilled manual workers and the two groups of farmers. The distinction between these is not as definite as in town areas, and indeed at some ages the heights and weights of the children of unskilled workers are greater than those of the children of farmers. The figures for all occupational groups in the rural areas were calculated by the same method as were those in town areas.

Comparison of tables 2A and 2B with tables 3A and 3B shows that, in rural areas, heights and weights are considerably greater than in town areas. This obtains, too, for individual occupational groups, as is seen by comparing the three groups : unskilled manual worker, skilled manual worker and lower professional worker. This observation is thrown into sharp relief by diagrams VA, VB, VIA and VIB, which show the mean heights and weights of the children of unskilled manual workers in the town and rural areas, and enable a comparison to be made between the two areas. To avoid confusion caused by overlapping lines, only the unskilled manual worker group for both areas is shown in these diagrams.

Tables 4A and 4B show mean heights and weights in the Congested Districts at two periods. While height does not seem to vary, average weights are greater in the Spring than in the Autumn. The Dietary Survey showed that the intake of food in families in these areas was much higher in Autumn than in Spring, and the suggestion was made that this depended upon a higher degree of physical activity in Autumn. The reverse condition—i.e., a lesser degree of physical activity in Winter and in Spring—might account for increased weights at this time. It is felt that the children in the Congested Districts correspond more closely with those of unskilled manual workers in the rural areas than with rural children generally, and therefore a comparison has been made of children in the Congested Districts with children of unskilled manual workers in the rural areas. This comparison shows that mean heights are somewhat greater, age for age, in the Congested Districts, while there is no consistent difference in the matter of weights. The Congested Districts figures have been averaged (over the Spring and Autumn periods) to enable this comparison to be made.

(2) *Classification by size of family.*

Tables 5–7 show the mean heights and weights of school-children classified by age, occupational group of father and family size. Tables 5A and 5B relate to town areas, and show that there is a definite tendency for the heights and weights to decrease as the family size increases. In fact, out of 38 cases in table 5A, where comparisons of heights are possible at any individual age and between either two or three different sizes of family, there is a consistent downward trend in 31 but no consistent relationship in the remaining 7. Similarly, out of 38 instances where weights at any age are considered, there is a consistent downward trend in 25 and no consistent relationship in 13. Similar conclusions with regard to girls may be drawn from table 5B. Bearing in mind that the numbers sampled are small, and are liable to sampling variations, it seems very probable that there is, in town areas, a variation in height and weight with family size. Since each occupational group is shown separately in tables 5A and 5B, these differences cannot be due to larger families occurring more frequently among the poorer sections of the community.

Tables 6A and 6B relate to rural areas, and variation in mean heights and weights with family size is not so definite in them as in the tables relating to town areas. It will be noted that 19 out of 36 cases in table 6A and 20 out of 34 cases in table 6B show a reduction in mean height or weight with increasing family size. Most of these cases, however, occur among the children of manual workers. While there is some evidence, therefore, of a variation in average height and weight with family size among the children of manual workers, there is no such evidence among the children of farmers.

Tables 7A and 7B, relating to the Congested Districts, show that there is no observable variation in average height and weight with family size in these areas. In only 25 out of 72 cases is there a decrease in height or weight with increasing family size.

Heights and Weights: Certain Dublin Adolescents.

(1) *Classification by occupational group.*

Table 8 shows average heights and weights of certain adolescent boys and girls in Dublin, classified by age and occupational group. Three years of age are involved, namely, 17, 18 and 19 years. The occupational group is determined by the occupation of the adolescent himself and not by that of the head of his household. The average size of the three groups into which the adolescent boys of any one age are divided is 25, and the corresponding figure in the girls' table is 38.

Among boys the height and weight tend to be greater in the group of factory workers who successfully underwent a medical examination before employment (i.e., the " selected " group) than in either factory workers who did not do so (the " unselected ") or in clerical workers. The figures for clerical workers are higher than those for unselected factory workers. In the 17-year age-group the difference in average weight between both clerical and selected factory workers on the one hand, and unselected factory workers on the other, is as high as 14 lb. ; in the 18-year age-group, the selected factory workers show weights higher than clerical workers by about 6 lb., and the same difference is seen between clerical and unselected factory workers. As to height, the selected factory workers again show more or less consistently the highest figures of the three groups, with the clerical workers in an intermediate position and the unselected factory workers lowest.

Amongst the girls, clerical workers on the whole present the highest figures and the differences between the two types of factory workers are not seen, except in weight and (slightly) in height in the 17-year age-group.

(2) *Classification by size of family.*

In table 9 the adolescent boys and girls have been classified by age and by size of family. Here the average number of boys in each sample group was about 37 and of girls about 57. In both boys and girls at ages 17 and 18, weights are lower in those belonging to larger families ; height is not influenced, except perhaps in 17-year old girls. In the 19-year age-groups all differences have disappeared.

Nutritional State : School-Children.

(1) *Classification by age, occupational group of father and area of residence.*

It will be convenient to discuss tables 10–17 together. These tables show the numbers and percentages of children in " good," " fair " and " poor " nutritional state in the three town areas (Dublin City, Large Towns and Small Towns), the amalgamated town areas, the rural areas and the Congested Districts. Particulars are presented for three age-groups, namely, 4–7 years, 8–10 years and 11–14 years, and for the different occupational groups of the father (except in the Congested Districts, where no occupational classification was adopted). The proportions of children in the different categories of nutritional state vary considerably, and it is therefore necessary to enquire whether there is a real variation of nutritional state with one or more of the factors (*a*) age, (*b*) area of residence, or (*c*) occupational group of father, or whether the differences noted should be ascribed to sampling variations.

Tables 11A and 11B, which give the proportions of boys and girls in good, fair and poor nutritional state in town areas, do not show any definite relationship between nutritional state and age. It is true that in 17 out of the 32 groups the proportions in good nutritional state at ages 8–10 years are lower than at other ages, but it can be shown that such differences as between age-groups are probably due to chance variations. (see Appendix).

Tables 15A and 15B show the proportions of boys and girls in the three nutritional grades in rural areas. A consideration of the three large occupational groups, unskilled manual worker, farmer of acreage up to 30 acres, and farmer of acreage over 30 acres, shows that the proportions of boys and girls aged 8–10 years in good nutritional state are lower than the corresponding proportions for all ages together, while the proportions in fair nutritional state are higher. This result obtains in each of the six groups and could scarcely have arisen by chance. A statistical investigation, the results of which are given in the Appendix, shows that it is a valid conclusion that, in rural areas, boys and girls at ages 8–10 years are in poorer nutritional state than those at other ages.

In tables 17A and 17B, which show corresponding figures for children living in the Congested Districts, there is no marked variation of nutritional state with age.

For the further analysis of nutritional state, it will be necessary to consider only the totals for all ages together. There are definite indications of variation in the standard of nutrition in different parts of the country and in different occupational groups. (see Appendix). If the same occupational group is considered in different town areas, it will be seen that the percentages of children of good nutritional state are highest in Dublin, and that the figures for large towns are generally higher than those for small towns. In rural areas, although heights and weights are considerably greater than in Dublin, the percentages of children of good nutritional state are lower than in Dublin. It was shown in the Dietary Survey that the consumption of food was generally higher in rural areas than in Dublin, and if the assumption be made that the intake of food in families was equitably distributed amongst the various members of the household, then it will seem likely that the differences in nutritional state are due to unconsciously varying standards in the assessment of nutritional state. This difficulty of varying subjective standards is one which is generally recognised, and is, in fact, inherent in work of this kind.

Variation in nutritional state with occupational group is apparent from tables 10–15. The following table, derived from tables 11, 13 and 15, shows the percentages of school-children in good and in poor nutritional state in the various areas, classified according to the occupational group of the father.

Table showing Percentage of School-Children in Good and in Poor Nutritional State in the Various Areas classified according to the Occupational Group of the Father.

Area		Unemployed		Unskilled Manual Worker		Skilled Manual Worker		Lower Professional		Farmer Under 30 acres		Farmer Over 30 acres	
		Nutritional State											
		Good	Poor	Good	Poor	Good	Poor	Good	Poor	Good	Poor	Good	Poor
		%	%	%	%	%	%	%	%	%	%	%	%
Dublin ..	Boys	75	3	79	2	86	–	90	–	–	–	–	–
	Girls	75	1	84	1	90	–	90	–	–	–	–	–
Large Towns	Boys	66	3	68	1	72	1	83	1	–	–	–	–
	Girls	70	–	72	2	76	0	78	1	–	–	–	–
Small Towns ..	Boys	58	12	61	7	69	3	76	3	–	–	–	–
	Girls	67	5	69	4	72	4	80	2	–	–	–	–
Amalgamated Town Areas	Boys	71	4	71	3	76	1	81	1	–	–	–	–
	Girls	73	1	76	2	79	1	80	2	–	–	–	–
Rural Areas ..	Boys	–	–	67	4	69	4	77	3	71	3	76	2
	Girls	–	–	67	2	82	1	84	1	72	3	79	1

A simple calculation will show that, considering all areas together, nearly three-quarters of the children were in good nutritional state, while the proportion of those in poor nutritional state was less than 2½ per cent.

(2) *Classification by sex.*

Tables 11A and 11B show that, of sixteen groups into which the town children of all ages have been divided in each table, in only two are the proportions of girls in good nutritional state lower than those of boys in the corresponding groups. This suggests that girls are, on the whole, in better nutritional state than boys in the corresponding occupational group. Tables 15A, 15B, 17A and 17B, which deal with the rural areas and the Congested Districts, appear to support this suggestion, for in only one out of eight cases does the proportion of girls in good nutritional state fall below the corresponding proportion for boys. To test the hypothesis that girls are in better nutritional state than boys in corresponding groups of the population, a chi-squared analysis was made (see Appendix). The results, however, are inconclusive.

(3) *Classification by size of family.*

Tables 18–20 show the numbers and percentages of children in the three grades of nutritional state classified according to the occupational group of the father and family size. In tables 18A and 18B, which relate to boys and girls respectively in the amalgamated town areas, there is no definite relationship between the nutritional state and the family size. An examination of the ten occupational groupings contained in the two tables shows that four of the groupings have the highest proportion of children in good nutritional state in the 1–4 children size, one in the 5–7 children size, three in the 8–11 children size, and in two groups the same proportions are seen in two sizes of family.

In tables 19A and 19B, which relate to rural areas, it seems uncertain whether there is a distinct variation in the nutritional state with size of family. The girls' figures (table 19B) would indicate such a trend, but in the case of boys the evidence is inconclusive. Since there is a conflict here it is unsafe to draw any conclusion.

Tables 20A and 20B, relating to the Congested Districts, do not show any definite trend of nutritional state with size of family.

The conclusions drawn in the last three paragraphs are based on the results of tests of significance described in the Appendix.

Nutritional State : Certain Dublin Adolescents.

Table 21 shows the nutritional state, as assessed by the medical examiner, of certain adolescent boys and girls in Dublin, classified by occupational group. In both boys and girls, the percentage of those with good nutrition is highest in clerical workers—about four-fifths of the sample were of good nutrition and one-fifth of fair nutrition. Amongst selected factory workers, the nutritional condition in both sexes is " good " in about three-quarters and " fair" in about one-quarter. In the unselected factory workers, the position is less favourable than in the other two groups, and as between the sexes is less favourable among boys than girls. As many as one-tenth of the boys examined in this group are reported as of poor nutrition compared with less than half this proportion in girls ; those of fair nutrition amounted to about a third in boys and a quarter in girls, and those of good nutrition to almost three-quarters in girls and not much more than a half in boys.

Nutritional State: Expectant and Nursing Mothers attending certain Clinics in Dublin.

Table 22 shows the nutritional state of certain expectant and nursing mothers in Dublin, classified by the occupational state of the husband and by parity, i.e., the number of pregnancies. Table 23 deals with the same mothers, with the distinction that the classification, instead of being by parity, is by the size of the family. As the figures of the two tables show little or no difference, both tables are dealt with together. First, as between the wives of unskilled workers and those of skilled or lower professional workers, a very much lower proportion in the unskilled group is of good nutrition, and this is true of any group relating to parity or to family size. For example, in table 23, of 34 wives of unskilled workers who have 1, 2 or 3 children, 19 are in good nutritional condition; where there are 4, 5 or 6 children, 40 mothers out of 75 are well nourished, while if the number of children is over 7, 28 mothers (out of 56) are in good nutritional state. When the wives of skilled or lower professional workers are considered, however, the position is different: in the 1, 2 or 3 children size of family, 23 out of 25 mothers are in good nutritional state; when the family consists of 4, 5 or 6 children, 20 out of 26 mothers are in this category, but when the family consists of 7 or more children, the number of mothers in good nutritional state is 9 out of a total of 16.

When the whole tables are considered, there is a consistent fall in the percentage showing good nutrition as the parity or the number of children increases.

Clinical Signs and Nutritional State.

School-Children

A comparison of tables 13A and 13B with table 24 enables the relationship between nutritional state and the presence of certain clinical signs in town areas to be examined. To prevent large sampling variations arising from small numbers, this comparison will be made only for the total of all ages. The proportions of children having certain clinical signs compared with the proportion of the same children in good nutritional state are shown in the following table derived from tables 13A, 13B and 24.

Percentages of Boys and Girls in Good Nutritional State in the Amalgamated Town Areas and Percentages showing Certain Clinical Signs.

Occupational Group of Father	Proportion in good nutritional state	Gingivitis	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Excess subcutaneous fat	Mucous membrane pallor	Goitre	Evidence of rickets	Sum of percentages for each sign
Boys											
	%	%	%	%	%	%	%	%	%	%	
Unemployed ..	71	31	8	7	11	21	0	12	2	20	112
Unskilled Manual Worker ..	71	28	8	7	11	20	1	11	3	21	110
Skilled Manual Worker	76	23	7	5	9	21	0	10	3	16	94
Lower Professional ..	81	22	6	5	8	17	0	6	2	15	81
Father Deceased ..	72	33	7	6	12	18	1	12	2	20	111
Girls											
	%	%	%	%	%	%	%	%	%	%	
Unemployed ..	73	29	7	4	9	16	1	9	5	18	98
Unskilled Manual Worker ..	76	26	5	6	9	13	1	9	4	16	89
Skilled Manual Worker	79	24	4	4	8	15	1	9	3	16	84
Lower Professional ..	80	22	6	7	12	12	1	9	3	15	87
Father Deceased ..	74	28	6	8	13	13	2	12	4	16	102

As an index for indicating the incidence of the clinical signs as a whole, the sum of the proportions of children in any particular group showing each clinical sign separately has been adopted. It will be observed that, as the proportion of boys in good nutritional state increases from the unemployed group to the lower professional group, the figures in the last column of the table decrease from 112 to 81. This is, of course, what one would expect—as nutritional state improves the number of clinical signs (of the type under consideration) present in the group should decrease. The decrease is particularly evident in the case of gingivitis, but it is also present in most of the other signs shown in the table.

Among the different occupational groups in the case of girls, as the proportion of girls in good nutritional state increases the percentage of girls showing clinical signs decreases in most of the cases shown in the table. Amongst girls the variation in nutritional state and in the incidence of clinical signs among different groups in the table is not as wide as it is amongst boys.

The following table (derived from Tables 15A, 15B and 25) shows how the incidence of clinical signs among children in rural areas varies with the nutritional state.

PERCENTAGES OF BOYS AND GIRLS IN GOOD NUTRITIONAL STATE IN RURAL AREAS AND PERCENTAGES SHOWING CERTAIN CLINICAL SIGNS.

Occupational Group of Father	Proportion in good nutritional state	Gingivitis	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Excess subcutaneous fat	Mucous membrane pallor	Goitre	Evidence of rickets	Sum of percentages for each sign
BOYS											
	%	%	%	%	%	%	%	%	%	%	
Unskilled Manual Worker ..	67	27	8	11	17	18	0	5	2	21	109
Skilled Manual Worker	69	29	8	8	12	20	—	3	2	18	100
Lower Professional ..	77	22	13	3	14	17	—	6	1	15	91
Father Deceased ..	75	35	9	7	12	21	—	5	1	14	104
Farmer (up to 30 acres)	71	33	6	9	12	17	0	6	1	18	102
Farmer (over 30 acres)	76	28	4	7	10	15	—	6	1	17	88
GIRLS											
	%	%	%	%	%	%	%	%	%	%	
Unskilled Manual Worker ..	67	25	8	12	17	13	1	9	4	17	106
Skilled Manual Worker	82	20	4	9	11	4	1	7	6	13	75
Lower Professional ..	84	15	4	6	7	8	1	6	4	13	64
Father Deceased ..	69	32	7	10	16	6	1	8	6	14	100
Farmer (up to 30 acres)	72	34	5	9	13	11	1	5	3	19	100
Farmer (over 30 acres)	79	24	5	7	11	11	0	7	4	20	89

The table shows that in rural areas variation in the nutritional state and in the incidence of clinical signs is more pronounced among girls than boys. In this table also there is in general an inverse relationship between the proportion in good nutritional state and the percentage of children showing a particular clinical sign, but in certain cases the relationship is not well defined.

Although nutritional state in the Congested Districts shows no significant change between Autumn and Spring, there were more clinical signs evident among boys and girls in Spring, as is seen in the following table, derived from tables 17A, 17B and 26.

PERCENTAGES OF BOYS AND GIRLS IN GOOD NUTRITIONAL STATE IN THE CONGESTED DISTRICTS AND PERCENTAGES SHOWING CERTAIN CLINICAL SIGNS.

Period	Proportion in good Nutritional state	Gingivitis	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Excess subcutaneous fat	Mucous membrane pallor	Goitre	Evidence of rickets	Sum of percentages for each sign
BOYS											
	%	%	%	%	%	%	%	%	%	%	
Autumn ..	68	20	7	4	8	23	0	7	–	23	92
Spring ..	71	29	6	7	11	20	0	8	0	29	110
GIRLS											
	%	%	%	%	%	%	%	%	%	%	
Autumn ..	74	18	6	3	7	14	0	7	0	18	73
Spring ..	72	23	6	9	13	13	1	9	1	27	102

Adolescents.

The following table (derived from Tables 21, 27A and 27B) shows particulars of nutritional state and the presence of clinical signs among adolescents.

PERCENTAGES OF CERTAIN ADOLESCENTS IN GOOD NUTRITIONAL STATE IN DUBLIN AND PERCENTAGES SHOWING CERTAIN CLINICAL SIGNS.

Occupational Group	Proportion in good nutritional state	Folliculosis	Gingivitis	Mottled teeth	Poor posture	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Skin lacks gloss	Mucous membrane pallor	Sum of percentages for each sign
BOYS												
	%	%	%	%	%	%	%	%	%	%	%	
Clerical ..	81	2	38	2	14	6	2	16	16	14	10	120
Factory (Selected)	76	2	45	10	15	11	9	17	11	19	8	147
Factory (Unselected) ..	59	3	55	7	24	14	10	17	31	21	14	196
GIRLS												
	%	%	%	%	%	%	%	%	%	%	%	
Clerical ..	86	11	28	7	8	2	6	7	5	24	9	107
Factory (Selected)	77	7	44	13	13	3	15	17	3	17	11	143
Factory (Unselected) ..	72	9	30	9	9	8	8	12	8	22	6	121

In this table also the proportion of adolescents showing certain of the clinical signs increases as the proportion in good nutritional state decreases. In a few cases, however, no definite relationship is evident between the proportion of adolescents showing certain signs and the proportion in good nutritional state.

Nursing and Expectant Mothers.

The variation of nutritional state with the presence of clinical signs among nursing and expectant mothers is shown in the next table (derived from Tables 22 and 28).

PERCENTAGES OF CERTAIN NURSING AND EXPECTANT MOTHERS IN GOOD NUTRITIONAL STATE IN DUBLIN AND PERCENTAGES SHOWING CERTAIN CLINICAL SIGNS.

Occupational Group of Husband	Proportion in good nutritional state	Folliculosis	Gingivitis	Mottled teeth	Poor posture	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Skin lacks gloss	Mucous membrane pallor	Sum of percentages for each sign
	%	%	%	%	%	%	%	%	%	%	%	
Unskilled Worker	57	3	53	2	12	4	8	12	29	12	12	147
Skilled Worker and Lower Professional	77	3	56	7	3	4	10	17	15	11	8	134

Although there is a large difference between the two groups in the proportions of mothers in good nutritional state, there is little difference on the whole between the total incidence of signs in each group, but while some of the signs are less evident in one group, others are present to a greater degree. Poor posture and diminished subcutaneous fat are more evident among wives of unskilled manual workers than among those of the skilled manual workers and lower professional groups.

SUMMARY

1. A survey was made in the period 1946-48 of the nutritional state of 14,835 school-children throughout the country, 570 adolescent boys and girls aged 17, 18 and 19, occupied as clerical or as factory workers in Dublin, and 320 expectant and nursing mothers attending free clinics in Dublin. The survey consisted of a recording of height and weight in the first two groups, and of an estimation of nutritional state and a recording of certain clinical signs in all three groups.

2. In town areas generally, children of lower professional workers showed greater heights and weights, age for age, than those of skilled manual workers; children of skilled manual workers showed higher figures than those of unskilled manual workers, and the children of unemployed workers showed the lowest heights and weights. There was therefore a variation in height and weight with social class.

3. In rural areas, such distinctions were not clearly observable.

4. In the social classes represented by unskilled manual workers, skilled manual workers and lower professional workers, the heights and weights of children living in rural areas were considerably greater than in urban areas.

5. In the Congested Districts, heights and weights of school-children did not differ significantly from those of the children of unskilled workers in rural areas generally. The weight of children was distinctly greater in the Congested Districts in Spring than in Autumn.

6. In urban areas, the heights and weights of school-children of comparable ages became less as the size of the family increased. This was so in all social or occupational classes.

7. No significant or consistent variation of heights and weights with family size was seen either in the rural areas generally or in the Congested Districts.

8. Amongst adolescent boys, the greatest heights and weights were seen in the selected factory worker, with clerical workers next and unselected factory workers least. In adolescent girls, the clerical workers showed the greatest weights, and differences between the two types of factory worker were insignificant. Although the height figures showed little variation, the balance generally appeared again to favour the clerical workers.

9. The weight of adolescent boys and girls aged 17 or 18 was higher in those coming from families of 1 to 5 children than in those whose families were larger than this. In the 19-year age-group, no such variation was seen. No difference in height of adolescents was observed between these two sizes of family.

10. In town areas, the nutritional state of school-children was not found to vary with age.

11. In rural areas, children of ages 8–10 years were of poorer nutritional state than children of other ages ; this did not obtain, however, in the Congested Districts.

12. Children in rural areas were in poorer nutritional state than in Dublin.*

13. In town areas, the nutritional state of school-children was found to vary consistently in both sexes with the social scale as indicated by the occupational group. In rural areas a similar trend was seen, and amongst children of farmers, the nutritional state was better in those from farms of over 30 acres than in those from smaller farms.

14. There was some evidence to suggest the hypothesis that girls were in better nutritional state than boys in corresponding occupational groups, but a chi-squared test to verify this hypothesis was inconclusive.

15. It was found generally that the nutritional state of school-children was not affected by the size of the family.

---

*But see comment in text, page 14

16. Among all the children examined, the proportion in good nutritional state amounted to about 75 per cent. of the total, while those in poor nutritional state came to less than 2½ per cent.

17. Amongst adolescents, the nutritional state was found to be better in clerical than in factory workers. As between two groups of factory workers, it was better in those whose employment was preceded by a medical examination.

18. In expectant and nursing mothers, the wives of skilled or lower professional workers were in better nutritional state than the wives of unskilled workers, and this distinction persisted in all sizes of family.

19. Amongst expectant and nursing mothers of all occupational groups, the number of those in good nutritional state consistently diminished as the size of the family increased.

20. A comparison between the numbers of school-children of good nutritional state and the incidence amongst them of certain clinical signs showed that, in general, as the proportion in good nutritional state decreased, the number with certain clinical signs increased. This was true in both town and rural areas, and applied particularly in the case of gingivitis.

21. Amongst adolescents, a similar variation was present.

22. Amongst expectant and nursing mothers, there was little relationship between the nutritional state and the incidence of clinical signs.

23. All the figures relating to adolescents and mothers are to be treated with reserve on account of the small numbers involved.

INDEX TO TABLES

Table No.	*Description*		*Area*
1A, 1B	Heights, Weights and Standard Deviation	Boys and Girls	Towns
2A, 2B	Heights and Weights		Amalgamated Towns
3A, 3B	Heights, Weights and Standard Deviation		Rural Areas
4A, 4B	,, ,, ,, ,, ,,		Congested Districts
5A, 5B	Heights and Weights by Family Size	Boys and Girls	Amalgamated Towns
6A, 6B	,, ,, ,, ,, ,, ,,		Rural Areas
7A, 7B	,, ,, ,, ,, ,, ,,		Congested Districts
8	Heights and Weights	Adolescent Boys and Girls	Dublin
9	Heights and Weights by Family Size		Dublin
10A, 10B	Nutritional State .. Numbers	Boys and Girls	Towns
11A, 11B	,, ,, .. Percentages		Towns
12A, 12B	,, ,, .. Numbers		Amalgamated Towns
13A, 13B	,, ,, .. Percentages		Amalgamated Towns
14A, 14B	,, ,, .. Numbers		Rural Areas
15A, 15B	,, ,, .. Percentages		Rural Areas
16A, 16B	,, ,, .. Numbers		Congested Districts
17A, 17B	,, ,, .. Percentages		Congested Districts
18A, 18B	Nutritional State by Family Size— Numbers and Percentages	Boys and Girls	Amalgamated Towns
19A, 19B	Nutritional State by Family Size— Numbers and Percentages		Rural Areas
20A, 20B	Nutritional State by Family Size— Numbers and Percentages		Congested Districts
21	Nutritional State—Adolescent Boys and Girls	..	Dublin
22	Nutritional State by Parity	Nursing and Expectant Mothers	Dublin
23	,, ,, ,, Family Size		Dublin
24	Clinical Signs	Boys and Girls	Amalgamated Towns
25	,, ,,		Rural Areas
26	,, ,,		Congested Districts
27	,, ,, .. Adolescent Boys and Girls	..	Dublin
28	,, ,, .. Nursing and Expectant Mothers	..	Dublin

TABLE 1A.—MEAN HEIGHTS AND WEIGHTS, PLUS OR MINUS STANDARD TOWNS AND SMALL TOWNS, CLASSIFIED BY

AGE	Unemployed	Unskilled Manual Worker	Skilled Manual Worker	Lower Professional	Father Deceased	Farmer or Farm Worker	†All Occupations
	Height in ins. ± Standard Deviation						
							DUBLIN
4 years	—	*	—	—	—	—	†
5 ,,	40.4±0.43	41.4±0.23	41.6±0.48	42.9±0.45	*	—	41.8
6 ,,	42.9±0.37	43.2±0.21	44.9±0.38	44.9±0.58	*	—	44.2
7 ,	45.1±0.35	44.9±0.31	45.8±0.56	47.7±0.66	45.8±0.59	—	46.0
8	46.9±0.47	47.8±0.26	48.3±0.48	*	48.2±0.58	—	48.4
9	49.0±0.59	49.0±0.32	49.8±0.45	51.8±0.64	50.1±0.67	—	50.1
10	51.3±0.40	51.0±0.19	51.6±0.69	52.8±0.54	51.0±0.51	—	51.7
11 ,	51.9±0.38	52.6±0.34	52.8±0.46	*	52.6±0.57	—	53.9
12 ,,	53.9±0.47	54.3±0.27	54.5±0.54	56.6±0.88	54.8±0.90	—	55.0
13 ,,	55.5±0.62	56.4±0.35	56.6±0.69	*	56.2±0.75	—	57.6
14 ,,	—	*	*	*	*	—	†
							LARGE
4 years	*	38.9±0.37	40.1±0.37	41.2±0.54	*	—	40.0
5 ,,	41.1±1.11	41.4±0.27	42.7±0.42	42.7±0.43	*	—	42.4
6 ,,	43.8±0.49	44.7±0.34	45.7±0.58	44.8±0.46	—	—	45.1
7 ,,	*	47.9±0.48	48.3±0.47	48.1±0.45	*	—	47.9
8 ,,	47.5±0.66	49.1±0.48	49.3±0.31	49.6±0.45	*	—	49.3
9 ,,	*	50.1±0.39	50.7±0.43	51.5±0.38	50.4±1.53	—	50.7
10 ,,	50.6±0.63	51.8±0.40	52.7±0.38	53.4±0.42	52.7±0.65	—	52.5
11 ,,	53.3±0.55	53.7±0.36	53.8±0.45	55.3±0.38	54.0±0.76	—	54.1
12 ,,	*	55.4±0.37	55.2±0.42	55.6±0.37	56.6±0.73	—	55.4
13 ,,	56.4±1.09	56.6±0.43	57.9±0.41	59.1±0.64	56.0±0.78	—	57.7
14 ,,	*	*	*	*	*	—	†
							SMALL
4 years	*	39.8±0.31	40.8±0.43	41.1±0.36	*	*	40.6
5 ,,	—	42.0±0.39	41.7±0.67	43.0±0.30	*	*	42.2
6 ,,	*	43.7±0.31	44.2±0.33	45.1±0.24	*	44.8±0.44	44.3
7 ,,	*	45.8±0.38	46.1±0.39	46.8±0.44	*	47.4±0.35	46.4
8 ,,	*	47.5±0.42	48.6±0.42	49.0±0.40	*	50.0±0.44	48.3
9 ,,	*	49.8±0.35	50.5±0.49	50.5±0.38	*	51.4±0.53	50.3
10 ,,	*	51.5±0.32	52.8±0.58	52.8±0.37	51.3±1.03	52.7±0.72	52.4
11 ;,	*	53.3±0.27	54.9±0.64	54.5±0.31	*	55.2±0.25	54.1
12 ,,	*	54.8±0.34	56.1±0.49	56.3±0.38	*	56.5±0.55	55.9
13 ,,	*	57.3±0.47	56.0±0.49	56.8±0.41	57.2±0.82	*	56.6
14 ,,	—	*	*	*	*	*	†

* Less than 10 boys in group.

† Individual means calculated from less than 10 items although not shown in the tables, were used were based on less than 10 items, a mean for all occupational groups is not shown.

DEVIATIONS OF THE MEANS, OF SCHOOLBOYS IN DUBLIN CITY, LARGE
AGE AND BY OCCUPATIONAL GROUP OF FATHER.

Unemployed	Unskilled Manual Worker	Skilled Manual Worker	Lower Professional	Father Deceased	Farmer or Farm Worker	†All Occupations	AGE
			Weight in lbs. ± Standard Deviation				
CITY							
—	*	—	—	—	—	†	4 years
38.6±0.79	40.9±0.50	40.6±1.10	40.7±0.95	*	—	40.6	5
42.6±0.74	43.2±0.41	46.2±0.84	46.2±1.30	*	—	45.1	6
45.2±0.71	47.0±0.76	48.5±0.79	49.4±1.71	48.5±0.99	—	48.2	7 ,
51.0±1.10	53.0±0.62	52.4±1.27	*	53.5±1.30	—	53.5	8 ,,
54.5±1.51	56.0±0.80	58.5±1.20	63.0±2.31	59.7±2.17	—	58.9	9 ,,
61.9±1.28	60.5±0.56	61.7±1.54	64.9±1.58	59.9±1.60	—	62.1	10 ,,
64.6±1.68	65.2±1.01	65.5±1.44	*	66.9±1.37	—	68.9	11 ,,
71.3±1.54	72.2±1.04	70.5±2.19	76.1±2.32	70.6±1.90	—	72.4	12 ,,
76.6±2.11	79.2±1.33	75.6±1.94	*	77.4±2.98	—	78.6	13 ,,
—	*	*	*	*	—	†	14 ,,
TOWNS							
*	36.8±0.94	38.6±0.87	39.2±1.11	*	—	38.0	4 ,,
39.5±1.71	40.0±0.62	42.5±0.84	42.6±0.81	*	—	41.8	5 ,,
44.4±1.26	45.6±0.76	47.4±1.30	46.1±0.98	—	—	46.4	6 ,,
*	51.6±1.11	53.7±1.06	53.2±1.15	*	—	52.5	7 ,,
51.6±1.39	55.4±1.22	55.0±0.91	57.1±1.46	*	—	55.7	8 ,,
*	58.0±1.08	58.9±0.99	61.8±0.95	58.6±2.83	—	59.3	9 ,,
59.6±2.03	62.7±1.24	64.0±1.15	66.6±1.31	65.3±2.38	—	64.2	10 ,,
67.6±1.50	67.8±1.32	67.8±1.39	72.5±1.48	70.9±3.19	—	69.1	11 ,,
*	73.1±1.16	73.0±1.70	73.5±1.62	77.4±3.65	—	73.1	12 ,,
76.3±4.70	78.8±1.75	82.8±1.43	86.5±2.61	75.3±3.46	—	82.0	13 ,,
*	*	*	*	*	—	†	14 ,,
TOWNS							
*	38.7±1.01	39.7±0.95	41.0±0.92	*	*	39.9	4 ,,
—	42.0±1.03	41.7±1.13	43.7±0.78	*	*	42.5	5 ,,
*	44.4±0.82	45.5±0.87	47.2±0.70	*	47.8±1.33	45.6	6 ,,
*	49.9±0.99	49.2±1.11	50.9±1.42	*	53.8±1.73	50.1	7 ,,
*	52.2±1.12	54.6±1.14	55.3±1.13	*	59.4±1.30	54.1	8 ,,
*	57.6±0.86	60.2±1.33	60.0±1.15	*	62.9±1.55	59.4	9 ,,
*	63.6±1.02	65.3±1.88	65.5±1.33	62.4±2.93	67.5±2.11	64.8	10 ,,
*	68.9±1.24	68.4±1.30	71.1±1.09	*	73.6±1.86	69.4	11 ,,
*	74.6±1.40	75.7±2.48	78.4±2.06	*	79.6±1.98	76.6	12 ,,
*	83.7±1.99	77.9±1.93	82.4±2.29	80.4±3.19	*	80.5	13 ,,
—	*	*	—	*	*	†	14 ,,

in deriving the means for all occupational groups. Where, however, most of the individual means

TABLE 1B.—MEAN HEIGHTS AND WEIGHTS, PLUS OR MINUS STANDARD TOWNS AND SMALL TOWNS, CLASSIFIED BY AGE

AGE	Unemployed	Unskilled Manual Worker	Skilled Manual Worker	Lower Professional	Father Deceased	Farmer or Farm Worker	†All Occupations
	Height in ins. ± Standard Deviation						
							DUBLIN
4 years	—	*	*	—	—	—	†
5 ,,	41.2±0.32	41.2±0.23	41.5±0.42	*	*	—	41.8
6 ,,	42.3±0.36	42.5±0.21	43.8±0.54	*	42.6±0.51	—	43.3
7 ,,	44.5±0.29	44.9±0.30	45.6±0.46	*	*	—	45.7
8 ,,	45.5±0.29	46.9±0.28	48.3±0.45	*	47.6±0.65	—	47.8
9 ,,	47.9±0.52	49.5±0.26	49.2±0.49	*	*	—	49.8
10 ,,	50.1±0.49	50.4±0.29	51.6±0.42	*	50.7±0.84	—	51.6
11 ,,	51.7±0.46	52.8±0.39	53.4±0.62	*	52.0±0.60	—	53.3
12 ,,	53.5±0.45	54.6±0.33	54.8±0.55	*	54.8±0.49	—	54.0
13 ,,	56.1±0.54	55.8±0.33	56.3±0.49	*	56.3±0.70	—	56.1
14 ,,	*	*	—	—	*	—	†
							LARGE
4 years	*	38.9±0.57	41.0±0.32	40.4±0.80	—	—	40.1
5 ,,	*	41.5±0.35	42.7±0.34	43.5±0.62	*	—	42.3
6 ,,	*	42.8±0.27	43.9±0.41	44.6±0.49	*	—	43.6
7 ,,	43.9±0.77	45.8±0.30	45.8±0.29	47.0±0.50	*	—	46.0
8 ,,	46.3±0.87	47.4±0.28	47.1±0.48	48.8±0.59	46.4±0.78	—	47.5
9 ,,	*	49.0±0.31	49.5±0.45	51.3±0.48	*	—	49.9
10 ,,	50.9±0.87	51.1±0.27	52.0±0.37	52.0±1.08	50.9±0.64	—	51.7
11 ,,	*	53.0±0.34	53.8±0.49	54.3±0.48	54.8±0.70	—	53.8
12 ,,	54.3±0.87	54.7±0.33	55.8±0.62	56.8±0.81	55.0±0.81	—	55.7
13 ,,	*	58.0±0.28	57.5±0.48	56.4±0.69	58.1±0.72	—	57.4
14 ,,	*	58.0±0.93	*	*	*	—	†
							SMALL
4 years	*	39.4±0.53	40.4±0.46	40.8±0.35	*	*	40.3
5 ,,	*	42.0±0.34	41.8±0.32	42.3±0.40	*	42.7±0.63	42.0
6 ,,	*	43.8±0.33	48.5±0.55	45.0±0.35	*	44.9±0.53	46.1
7 ,,	*	46.3±0.34	46.6±0.32	46.4±0.35	*	47.7±0.51	46.4
8 ,,	*	47.7±0.42	48.2±0.38	46.9±0.32	*	48.6±0.54	47.7
9 ,,	*	49.7±0.32	51.0±0.31	50.8±0.39	*	50.6±0.68	50.5
10 ,,	*	51.4±0.34	51.4±0.47	52.3±0.52	*	52.4±0.57	51.7
11 ,,	*	52.6±0.32	54.0±0.43	54.9±0.41	52.2±2.80	54.9±0.45	53.7
12 ,,	*	55.6±0.45	56.4±0.92	55.4±0.54	55.2±1.42	57.5±0.73	55.9
13 ,,	*	56.8±0.67	57.4±1.08	58.1±0.46	*	58.9±0.49	57.5
14 ,,	*	57.7±0.89	*	*	*	59.8±0.45	†

* Less than 10 girls in group.

† See note on table 1A

DEVIATIONS OF THE MEANS, OF SCHOOLGIRLS IN DUBLIN CITY, LARGE AND BY OCCUPATIONAL GROUP OF FATHER.

Unemployed	Unskilled Manual Worker	Skilled Manual Worker	Lower Professional	Father Deceased	Farmer or Farm Worker	†All Occupations	AGE
Weight in lbs. ± Standard Deviation							
CITY							
—	*	*	—	—	—	†	4 years
38.5 ± 0.72	38.8 ± 0.48	38.8 ± 1.06	*	*	—	39.1	5 ,,
40.9 ± 0.81	40.9 ± 0.39	42.5 ± 0.85	*	40.4 ± 1.11	—	41.4	6 ,,
44.8 ± 0.77	45.1 ± 0.60	46.9 ± 1.13	*	*	—	47.0	7 ,,
46.5 ± 0.70	50.1 ± 0.53	51.4 ± 1.58	*	50.7 ± 1.14	—	50.9	8 ,,
52.3 ± 1.17	55.8 ± 0.73	54.6 ± 1.27	*	*	—	56.2	9 ,,
57.9 ± 1.45	57.8 ± 0.92	59.3 ± 1.12	*	61.4 ± 4.13	—	60.5	10 ,,
62.2 ± 1.42	64.3 ± 1.14	66.7 ± 1.91	*	64.0 ± 1.88	—	66.3	11 ,,
69.8 ± 1.35	71.4 ± 1.27	74.8 ± 3.06	*	72.6 ± 2.55	—	71.5	12 ,,
78.3 ± 2.32	76.9 ± 1.50	79.9 ± 2.25	*	81.4 ± 3.15	—	77.5	13 ,,
*	*	—	—	*	—	†	14 ,,
TOWNS							
*	36.1 ± 1.14	39.3 ± 0.72	37.0 ± 0.89	—	—	37.5	4 ,,
*	39.1 ± 0.64	41.5 ± 0.60	43.5 ± 1.39	*	—	40.9	5 ,,
*	41.8 ± 0.61	43.1 ± 1.05	43.8 ± 0.96	*	—	42.6	6 ,,
43.2 ± 1.53	46.3 ± 0.64	46.2 ± 0.55	47.0 ± 1.15	*	—	46.3	7 ,,
47.4 ± 1.72	50.2 ± 0.66	50.2 ± 1.08	53.1 ± 1.67	48.8 ± 2.32	—	50.7	8 ,,
*	55.8 ± 0.57	54.9 ± 1.38	59.3 ± 1.70	*	—	56.5	9 ,,
60.8 ± 2.86	58.7 ± 0.82	62.2 ± 1.77	60.7 ± 3.49	59.3 ± 2.41	—	60.7	10 ,,
*	64.4 ± 1.05	68.1 ± 1.67	67.6 ± 1.93	68.2 ± 3.67	—	67.0	11 ,,
68.0 ± 2.38	71.0 ± 1.33	72.7 ± 2.24	75.3 ± 2.86	69.8 ± 3.00	—	72.5	12 ,,
*	79.0 ± 1.29	85.2 ± 2.64	80.1 ± 3.63	90.1 ± 3.69	—	82.5	13 ,,
*	90.4 ± 3.38	*	*	*	—	†	14 ,,
TOWNS							
*	36.3 ± 0.96	38.6 ± 1.10	38.2 ± 1.09	*	*	38.1	4 ,,
*	40.6 ± 0.83	40.4 ± 0.59	42.3 ± 1.19	*	43.1 ± 1.20	41.1	5 ,,
*	43.8 ± 0.79	43.7 ± 1.62	46.6 ± 1.17	*	47.8 ± 1.10	44.6	6 ,,
*	49.0 ± 0.75	46.9 ± 0.89	47.4 ± 0.97	*	53.3 ± 2.04	47.6	7 ,,
*	51.8 ± 0.72	52.1 ± 1.10	52.1 ± 0.95	*	56.1 ± 1.73	51.9	8 ,,
*	56.4 ± 0.91	59.3 ± 0.92	58.2 ± 1.43	*	59.6 ± 1.95	58.1	9 ,,
*	62.8 ± 1.19	60.0 ± 1.32	61.0 ± 1.22	*	63.2 ± 1.63	61.3	10 ,,
*	66.8 ± 1.26	68.1 ± 1.31	72.8 ± 1.87	65.3 ± 5.40	74.5 ± 2.06	68.6	11 ,,
*	77.3 ± 2.01	79.1 ± 3.64	77.0 ± 2.00	73.4 ± 5.49	82.7 ± 3.58	78.0	12 ,,
*	81.1 ± 2.28	84.8 ± 6.17	84.4 ± 1.96	*	88.8 ± 2.78	83.8	13 ,,
*	88.2 ± 5.14	*	*	*	91.6 ± 2.24	†	14 ,,

TABLE 2A.—MEAN HEIGHTS AND WEIGHTS OF SCHOOLBOYS IN AMALGAMATED TOWN AREAS, CLASSIFIED BY AGE AND BY OCCUPATIONAL GROUP OF FATHER.

AGE	Un-employed	Unskilled Manual Worker	Skilled Manual Worker	Lower Pro-fessional	Father Deceased	†All Occupa-tions	Un-employed	Unskilled Manual Worker	Skilled Manual Worker	Lower Pro-fessional	Father Deceased	†All Occupa-tions
	Height in ins.						Weight in lbs.					
4 years ..	*	39.5	40.4	41.1	*	40.7	*	38.2	39.0	40.4	*	39.5
5 ,, ..	40.6	41.5	42.1	42.8	41.6	42.1	38.8	40.7	41.6	42.7	42.0	41.5
6 ,, ..	43.3	43.7	44.9	45.0	43.2	44.6	43.2	44.2	46.3	46.7	44.1	45.8
7 ,, ..	45.3	46.0	46.8	47.5	46.4	46.9	46.2	49.1	50.8	51.6	49.2	50.5
8 ,, ..	47.1	48.1	48.7	49.3	48.6	48.8	51.5	53.4	53.9	56.2	54.8	54.6
9 ,, ..	49.3	49.5	50.4	51.2	50.5	50.4	55.8	57.0	59.1	61.3	59.6	59.2
10 ,, ..	51.2	51.3	52.4	53.0	51.7	52.2	61.4	61.7	63.6	65.7	62.3	63.5
11 ,, ..	52.3	53.1	53.9	55.1	53.4	54.0	65.6	67.0	67.4	72.3	69.9	69.1
12 ,, ..	54.2	54.8	55.3	56.1	56.3	55.3	71.8	73.1	73.2	76.0	76.7	73.4
13 ,, ..	55.9	56.7	57.0	57.9	56.4	57.5	76.5	80.1	79.4	83.8	77.5	80.5
14 ,, ..	*	56.7	58.7	58.6	*	57.4	*	78.8	88.3	86.5	*	81.6

* Less than ten boys in group.

† See note on table 1A

TABLE 2B.—MEAN HEIGHTS AND WEIGHTS OF SCHOOLGIRLS IN AMALGAMATED TOWN AREAS, CLASSIFIED BY AGE AND BY OCCUPATIONAL GROUP OF FATHER.

Age	Un-employed	Unskilled Manual Worker	Skilled Manual Worker	Lower Pro-fessional	Father Deceased	† All Occupa-tions	Un-employed	Unskilled Manual Worker	Skilled Manual Worker	Lower Pro-fessional	Father Deceased	† All Occupa-tions
	Height in ins.						Weight in lbs.					
4 years ..	*	39.3	40.6	40.6	*	40.2	*	36.4	38.8	37.6	*	37.8
5 ,, ..	40.8	41.5	41.9	42.8	41.6	42.1	38.4	39.4	40.1	42.7	40.2	40.2
6 ,, ..	42.6	42.9	44.0	44.7	42.9	43.9	41.4	41.8	43.1	45.0	40.6	42.5
7 ,, ..	44.5	45.6	45.7	46.7	45.5	46.0	44.6	46.6	46.7	47.6	47.5	46.8
8 ,, ..	45.8	47.3	47.8	48.5	47.1	47.6	47.0	50.6	51.3	52.5	50.0	51.0
9 ,, ..	48.3	49.4	50.0	51.0	50.2	50.0	53.3	56.0	56.5	58.7	59.1	56.6
10 ,, ..	50.4	50.9	51.6	52.2	51.3	51.7	59.1	59.4	60.3	61.2	61.1	60.7
11 ,, ..	52.0	53.1	53.8	54.7	52.7	53.6	62.9	65.2	67.7	72.4	65.4	67.0
12 ,, ..	54.1	54.8	55.7	55.7	54.9	55.1	71.2	73.0	75.3	76.2	72.1	73.0
13 ,, ..	56.4	56.4	56.9	57.3	57.2	56.9	79.4	78.6	82.6	81.2	84.7	80.8
14 ,, ..	*	57.6	58.5	59.2	59.2	57.9	*	87.4	86.1	95.7	97.4	87.1

* Less than ten girls in group.

† See note on table 1A.

TABLE 3A.—MEAN HEIGHTS AND WEIGHTS, PLUS OR MINUS STANDARI BY AGE AND BY OCCUPATIONAI

AGE	Unskilled Manual Worker	Skilled Manual Worker	Lower Professional	Father Deceased	Farmer (acreage up to 30 acres)	Farmer (acreage over 30 acres)	†All Occupations
	Height in ins. ± Standard Deviation						
4 years	39.9±0.32	*	*	—	*	*	†
5 ,,	42.2±0.35	*	43.3±0.63	*	41.8±0.28	43.5±0.55	42.6
6 ,,	44.4±0.28	45.5±0.50	45.7±0.40	*	44.9±0.26	45.4±0.39	45.0
7 ,,	46.1±0.24	*	47.7±0.70	*	46.7±0.30	47.7±0.35	46.9
8 ,,	48.9±0.22	47.8±0.28	49.7±0.60	47.8±0.63	48.8±0.25	48.9±0.48	48.8
9 ,,	50.4±0.31	49.8±0.30	51.4±0.69	*	51.0±0.29	51.4±0.32	50.9
10 ,,	52.1±0.45	51.7±0.79	53.1±0.52	51.8±0.82	52.3±0.29	52.6±0.40	52.3
11 ,,	53.5±0.28	52.7±0.60	55.8±0.61	54.3±0.44	54.6±0.25	54.5±0.33	54.2
12 ,,	55.5±0.37	*	58.2±2.17	55.4±0.75	56.1±0.44	57.5±0.45	56.4
13 ,,	57.0±0.46	55.8±2.37	*	56.9±0.53	57.5±0.43	58.2±0.47	57.5
14 ,,	*	*	*	*	60.0±0.52	*	†

* Less than 10 boys in the group.
† See note on table 1A.

TABLE 3B.—MEAN HEIGHTS AND WEIGHTS PLUS OR MINUS STANDARD BY AGE AND BY OCCUPATIONAL

AGE	Unskilled Manual Worker	Skilled Manual Worker	Lower Professional	Father Deceased	Farmer (acreage up to 30 acres)	Farmer (acreage over 30 acres)	†All Occupations
	Height in ins. ± Standard Deviation						
4 years	*	*	*	—	*	*	†
5 ,,	42.0±0.58	*	42.9±0.46	*	42.9±0.43	42.7±0.24	42.6
6 ,,	44.3±0.33	43.4±0.51	45.3±0.42	*	44.7±0.28	44.4±0.16	44.4
7 ,,	46·0±0.24	46.5±0.72	46.5±0.35	*	46.4±0.27	47.0±0.30	46.5
8 ,,	47.7±0.33	48.7±0.38	47.8±0.81	*	48.9±0.32	48.5±0.35	48.4
9 ,,	49.5±0.33	48.9±0.48	50.0±0.61	49.4±0.57	50.7±0.29	50.4±0.34	50.1
10 ,,	51.4±0.30	48.6±0.42	53.9±0.46	*	51.8±0.37	53.1±0.35	52.0
11 ,,	53.1±0.38	53.1±0.61	53.9±0.80	52.9±0.78	53.6±0.32	54.5±0.46	53.7
12 ,,	55.5±0.42	55.6±1.12	56.2±0.90	54.0±0.60	55.9±0.44	56.6±0.39	56.0
13 ,,	57.9±0.51	*	58.9±0.75	57.9±0.70	58.6±0.37	58.7±0.55	58.4
14 ,,	58.1±1.11	*	*	*	60.4±0.56	*	†

* Less than 10 girls in group.
† See note on table 1A.

DEVIATIONS OF THE MEANS, OF SCHOOLBOYS IN RURAL AREAS, CLASSIFIED GROUP OF FATHER.

Unskilled Manual Worker	Skilled Manual Worker	Lower Professional	Father Deceased	Farmer (acreage up to 30 acres	Farmer (acreage over 30 acres)	†All Occupa-tions	Age
Weight in lbs. ±Standard Deviation							
42.6±2.57	*	*	—	*	*	†	4 years
45.1±1.23	*	43.7±1.73	*	42.4±1.07	47.4±3.22	45.0	5 ,,
48.8±1.39	52.9±2.63	47.8±1.27	*	48.6±1.07	50.3±0.84	49.5	6 ,,
51.3±0.91	*	55.3±1.99	*	52.0±0.88	55.2±1.22	53.0	7 ,,
57.7±1.06	61.2±1.85	59.6±2.63	58.5±4.08	57.6±0.75	60.5±1.08	58.9	8 ,,
63.7±1.02	61.5±2.80	64.0±2.17	*	63.4±0.96	63.6±1.02	63.4	9 ,,
67.0±1.17	67.2±2.50	68.5±1.67	67.9±5.79	68.8±1.28	68.6±1.29	68.1	10 ,,
71.1±0.96	67.9±2.38	78.6±2.57	78.3±3.54	76.4±1.27	78.1±1.19	75.1	11 ,,
77.3±1.59	*	79.5±2.25	79.2±2.94	81.7±1.78	85.2±1.95	81.3	12 ,,
85.1±2.28	83.1±6.93	*	85.6±3.03	87.9±2.21	90.7±1.97	87.9	13 ,,
*	*	*	*	98.5±2.92	*	†	14 ,,

DEVIATIONS OF THE MEANS, OF SCHOOLGIRLS IN RURAL AREAS, CLASSIFIED GROUP OF FATHER.

Unskilled Manual Worker	Skilled Manual Worker	Lower Professional	Father Deceased	Farmer (acreage up to 30 acres	Farmer (acreage over 30 acres)	†All Occupa-tions	Age
Weight in lbs. ±Standard Deviation							
*	*	*	—	*	*	†	4 years
44.5±2.03	*	43.6±2.45	*	43.7±1.07	42.7±0.87	43.5	5 ,,
48.6±1.09	49.4±2.81	48.0±1.63	*	47.9±1.20	46.9±1.31	47 8	6 ,,
51 9±1.06	51.6±2.46	48.9±1.27	*	51.8±1.06	51.9±0.85	51.6	7 ,,
54.4±1.01	56.2±3.09	54.8±1.23	*	57.0±1.21	55.1±1.62	55.6	8 ,,
57.2±1.06	59.5±3.18	61.5±3.63	57.4±1.11	61.3±1.46	63.3±1.82	60.7	9 ,,
63.8±1.19	64.7±2.80	75.4±4.93	*	66.2±1.64	68.2±1.51	66.4	10 ,,
68.6±1.61	73.6±4.24	71.0±3.50	71.6±3.19	70.9±1.25	73.9±1.84	71.5	11 ,,
76.5±1.93	82.9±6.60	78.8±4.58	72.2±3.29	78.7±1.68	81.4±1.71	79.2	12 ,,
88.5±2.65	*	87.9±3.61	91.7±3.54	93.0±1.87	86.3±2.41	89.7	13 ,,
91.5±4.70	*	*	*	96.7±3.66	*	†	14 ,,

TABLE 4A.—MEAN HEIGHTS AND WEIGHTS, PLUS OR MINUS STANDARD DEVIATIONS OF THE MEANS, OF SCHOOLBOYS IN THE CONGESTED DISTRICTS, CLASSIFIED BY AGE AT TWO PERIODS.

AGE	Autumn, 1946	Spring, 1947	Autumn, 1946	Spring, 1947
	Height in ins. ± Standard Deviation		Weight in lbs. ± Standard Deviation	
4 years	41.0±0.60	41.3±0.69	38.8±0.76	41.0±1.39
5 ,,	43.3±0.28	43.1±0.28	43.4±0.58	44.4±0.73
6 ,,	45.1±0.18	45.2±0.18	46.7±0.49	48.7±0.55
7 ,,	47.3±0.21	46.9±0.22	51.3±0.59	52.2±0.54
8 ,,	49.1±0.22	49.2±0.25	55.8±0.59	57.4±0.63
9 ,,	51.3±0.25	51.1±0.28	60.8±0.69	63.0±0.79
10 ,,	53.0±0.24	52.6±0.22	66.3±0.91	67.9±0.79
11 ,,	55.0±0.21	54.8±0.27	72.2±0.68	74.7±1.00
12 ,,	56.7±0.25	56.3±0.25	79.8±1.04	81.0±1.03
13 ,,	57.5±0.35	57.7±0.35	83.3±1.59	87.8±1.44
14 ,,	60.2±0.55	60.2±0.65	88.5±3.00	99.7±3.55

TABLE 4B.—MEAN HEIGHTS AND WEIGHTS, PLUS OR MINUS STANDARD DEVIATIONS OF THE MEANS, OF SCHOOLGIRLS IN THE CONGESTED DISTRICTS, CLASSIFIED BY AGE AT TWO PERIODS.

AGE	Autumn, 1946	Spring, 1947	Autumn, 1946	Spring, 1947
	Height in ins. ± Standard Deviation		Weight in lbs. ± Standard Deviation	
4 years	38.1±0.64	39.2±0.43	37.7±1.33	35.6±0.90
5 ,,	42.7±0.22	42.6±0.20	41.3±0.48	42.4±0.51
6 ,,	44.6±0.22	44.5±0.23	44.4±0.56	46.0±0.53
7 ,,	46.9±0.20	46.4±0.19	48.9±0.53	50.2±0.49
8 ,,	49.2±0.18	49.3±0.30	55.0±0.62	57.2±0.89
9 ,,	51.1±0.25	50.8±0.24	59.2±0.75	60.6±0.78
10 ,,	52.8±0.28	52.2±0.23	64.3±0.89	66.6±0.87
11 ,,	54.6±0.26	54.3±0.21	69.8±0.84	71.3±0.78
12 ,,	56.6±0.32	55.8±0.32	77.6±1.29	78.6±1.26
13 ,,	58.1±0.32	58.6±0.28	85.5±1.59	89.7±1.66
14 ,,	60.3±0.43	59.3±0.49	94.8±2.47	93.5±3.16

TABLE 5A.—MEAN HEIGHTS AND WEIGHTS OF SCHOOLBOYS IN AMALGAMATED TOWN AREAS, CLASSIFIED BY AGE, OCCUPATIONAL GROUP OF FATHER AND SIZE OF FAMILY.

AGE	SIZE OF FAMILY					
	1-4 children	5-7 children	8 children and over	1-4 children	5-7 children	8 children and over
	Height in ins.			Weight in lbs.		
	UNEMPLOYED					
4 years	*	*	*	*	*	*
5 ,,	41.7	39.9	*	39.9	38.7	*
6 ,,	43.3	43.8	42.3	42.9	45.5	40.1
7 ,,	45.9	44.8	45.4	46.7	46.2	45.4
8 ,,	48.0	46.3	47.6	53.4	50.0	52.3
9 ,,	50.3	48.9	48.1	57.3	55.6	53.7
10 ,,	51.7	50.9	50.7	63.8	60.9	59.4
11 ,,	52.9	52.3	51.6	67.2	66.9	61.7
12 ,,	54.5	54.5	53.5	74.6	72.1	67.5
13 ,,	*	55.9	56.1	*	77.0	77.0
14 ,,	*	—	—	*	—	—
	UNSKILLED MANUAL WORKER					
4 years	39.8	39.9	*	38.8	38.2	*
5 ,,	41.7	41.4	41.0	41.0	40.0	41.5
6 ,,	44.3	43.5	43.0	44.6	44.4	43.1
7 ,,	46.8	45.5	45.4	50.2	48.1	49.0
8 ,,	48.9	47.9	47.2	55.0	52.8	51.9
9 ,,	49.8	49.4	48.1	57.9	56.7	54.6
10 ,,	51.6	51.5	50.7	62.3	62.2	60.3
11 ,,	54.0	53.2	53.0	68.6	67.1	66.1
12 ,,	55.0	53.9	53.9	73.5	72.9	70.0
13 ,,	56.6	57.1	56.3	79.4	80.8	80.2
14 ,,	*	*	*	*	*	*
	SKILLED MANUAL WORKER					
4 years	40.8	40.0	*	39.2	38.8	*
5 ,,	42.8	41.9	40.7	42.5	41.3	39.9
6 ,,	45.5	44.3	44.2	47.1	45.2	45.9
7 ,,	47.7	46.4	44.9	52.6	49.6	47.5
8 ,,	49.2	48.7	47.3	54.5	54.3	51.7
9 ,,	51.0	50.3	49.4	59.7	59.6	56.9
10 ,,	53.2	52.0	51.2	65.2	63.0	61.4
11 ,,	54.1	53.8	53.7	69.1	65.7	67.9
12 ,,	55.9	55.1	54.9	75.6	72.8	70.4
13 ,,	57.4	57.3	56.0	80.6	80.1	76.4
14 ,,	*	*	*	*	*	*
	LOWER PROFESSIONAL					
4 years	41.4	*	—	41.0	*	—
5 ,,	43.4	42.1	*	44.0	40.9	*
6 ,,	45.3	44.6	*	46.8	46.0	*
7 ,,	47.8	47.4	46.5	51.5	52.4	50.7
8 ,,	49.7	49.3	47.9	56.7	56.8	53.2
9 ,,	51.4	51.4	49.5	61.8	61.9	57.1
10 ,,	53.4	52.8	51.8	66.1	65.8	63.8
11 ,,	55.2	55.2	54.4	72.1	72.6	72.2
12 ,,	56.1	56.0	*	76.5	75.5	*
13 ,,	57.8	57.5	58.6	84.4	80.8	87.7
14 ,,	59.1	*	—	87.3	*	—

* Less than 10 boys in group.

TABLE 5B.—MEAN HEIGHTS AND WEIGHTS OF SCHOOLGIRLS IN AMALGAMATED TOWN AREAS, CLASSIFIED BY AGE, OCCUPATIONAL GROUP OF FATHER AND SIZE OF FAMILY.

AGE	SIZE OF FAMILY					
	1-4 children	5-7 children	8 children and over	1-4 children	5-7 children	8 children and over
	Height in ins.			Weight in lbs.		
	UNEMPLOYED					
4 years	*	*	*	*	*	*
5 ,,	41.2	40.5	*	39.4	37.8	*
6 ,,	42.4	42.8	*	40.7	41.5	*
7 ,,	44.9	44.4	44.1	45.0	44.2	44.9
8 ,,	46.2	46.1	44.7	47.5	47.8	44.9
9 ,,	49.4	48.0	46.9	55.3	52.3	52.1
10 ,,	50.9	50.8	48.9	61.6	59.3	55.4
11 ,,	52.8	51.5	52.4	63.3	61.8	64.5
12 ,,	54.7	54.3	53.2	73.9	69.4	70.2
13 ,,	56.8	55.9	56.6	82.1	76.0	81.0
14 ,,	*	*	*	*	*	*
	UNSKILLED MANUAL WORKER					
4 years	39.7	38.7	*	37.6	35.2	*
5 ,,	41.8	41.4	40.9	39.8	39.3	38.2
6 ,,	43.7	42.3	42.4	42.8	40.9	41.6
7 ,,	45.8	45.8	44.7	47.7	46.2	45.4
8 ,,	47.6	47.0	47.2	51.5	49.9	50.5
9 ,,	49.8	49.4	49.0	56.1	55.8	56.2
10 ,,	51.2	50.8	50.7	59.5	59.7	58.4
11 ,,	53.5	53.2	52.6	65.6	65.5	64.5
12 ,,	55.4	54.9	54.3	72.9	72.2	74.0
13 ,,	57.2	56.4	55.6	83.4	75.9	78.0
14 ,,	*	57.4	*	*	84.0	*
	SKILLED MANUAL WORKER					
4 years	40.6	*	*	38.7	*	*
5 ,,	42.0	41.8	41.9	39.8	40.7	40.0
6 ,,	44.5	43.6	42.9	43.5	43.9	39.6
7 ,,	46.4	45.1	45.5	47.1	46.0	47.2
8 ,,	48.2	48.1	46.3	51.8	51.5	49.5
9 ,,	51.2	49.4	49.5	59.5	55.6	53.6
10 ,,	52.4	51.0	51.8	62.5	58.1	61.9
11 ,,	54.3	53.8	52.9	68.9	68.0	64.9
12 ,,	56.3	54.9	56.1	77.1	71.8	78.5
13 ,,	57.7	56.8	56.2	85.7	82.7	79.5
14 ,,	*	*	*	*	*	*
	LOWER PROFESSIONAL					
4 years	40.7	*	*	37.6	*	*
5 ,,	43.3	42.9	*	43.7	42.5	*
6 ,,	45.5	44.0	*	46.9	43.3	*
7 ,,	46.8	46.7	*	48.4	47.3	*
8 ,,	48.9	48.2	*	52.9	52.0	*
9 ,,	51.6	50.5	*	59.8	57.8	*
10 ,,	52.6	52.2	*	62.1	61.2	*
11 ,,	55.8	54.6	53.8	75.4	73.0	67.9
12 ,,	56.7	56.0	53.1	80.0	74.9	71.2
13 ,,	57.7	57.4	*	81.7	81.3	*
14 ,,	*	*	*	*	*	*

*Less than 10 girls in group.

TABLE 6A.—MEAN HEIGHTS AND WEIGHTS OF SCHOOLBOYS IN RURAL AREAS, CLASSIFIED BY AGE, OCCUPATIONAL GROUP OF FATHER AND SIZE OF FAMILY.

AGE	SIZE OF FAMILY					
	1-4 children	5-7 children	8 children and over	1-4 children	5-7 children	8 children and over
	Height in ins.			Weight in lbs.		
	MANUAL WORKER					
4 years	*	*	*	*	*	*
5 ,,	42.6	42.2	*	45.1	44.5	*
6 ,,	45.0	44.4	*	52.1	48.6	*
7 ,,	46.2	46.1	*	50.6	51.5	*
8 ,,	49.2	48.6	48.2	59.2	58.5	56.6
9 ,,	50.7	50.6	49.4	63.2	64.5	61.8
10 ,,	52.9	51.6	51.7	67.0	66.9	67.1
11 ,,	53.8	53.2	53.4	70.2	71.0	70.9
12 ,,	56.5	55.7	54.7	78.4	78.6	74.8
13 ,,	57.8	57.3	54.7	87.2	86.9	78.6
14 ,,	*	*	*	*	*	*
	FARMER					
4 years	*	*	*	*	*	*
5 ,,	43.0	41.7	*	45.6	42.2	*
6 ,,	45.3	44.7	*	49.9	47.9	*
7 ,,	47.2	47.1	46.8	54.2	52.2	53.4
8 ,,	48.9	48.7	49.0	60.6	57.2	58.2
9 ,,	51.1	51.1	51.3	63.5	63.1	64.6
10 ,,	52.8	52.7	51.5	69.3	67.8	69.5
11 ,,	55.6	54.2	54.3	79.8	75.0	76.4
12 ,,	57.3	56.4	56.5	84.4	82.1	83.1
13 ,,	58.2	57.7	57.5	89.7	87.8	90.9
14 ,,	*	*	*	*	*	*

* Less than 10 boys in group.

TABLE 6B.—MEAN HEIGHTS AND WEIGHTS OF SCHOOLGIRLS IN RURAL AREAS, CLASSIFIED BY AGE, OCCUPATIONAL GROUP OF FATHER AND SIZE OF FAMILY.

AGE	SIZE OF FAMILY					
	1-4 children	5-7 children	8 children and over	1-4 children	5-7 children	8 children and over
	Height in ins.			Weight in lbs.		
	MANUAL WORKER					
4 years	*	*	*	*	*	*
5 ,,	42.5	*	*	45.0	*	*
6 ,,	44.3	43.2	*	49.2	47.8	*
7 ,,	46.1	46.8	44.9	51.2	53.4	50.4
8 ,,	48.3	48.0	46.9	56.0	54.2	53.8
9 ,,	50.2	49.2	48.4	58.9	57.6	56.3
10 ,,	51.7	51.6	51.1	62.3	65.2	64.9
11 ,,	53.4	53.1	52.6	73.9	68.3	66.0
12 ,,	57.0	55.0	54.4	86.6	73.8	71.4
13 ,,	58.5	57.5	57.3	93.6	89.4	86.8
14 ,,	*	*	*	*	*	*
	FARMER					
4 years	*	*	—	*	*	—
5 ,,	42.9	42.9	*	42.8	42.7	*
6 ,,	45.1	44.2	44.0	49.4	45.5	46.8
7 ,,	47.2	46.3	46.1	52.2	52.1	50.0
8 ,,	49.0	48.7	48.0	56.7	55.1	58.7
9 ,,	50.8	50.2	50.5	64.5	59.6	61.2
10 ,,	52.7	52.4	51.3	67.5	67.4	64.9
11 ,,	53.8	54.7	52.6	70.5	73.5	72.5
12 ,,	56.5	55.7	56.4	80.0	78.8	81.6
13 ,,	58.8	58.4	59.1	88.9	89.8	96.0
14 ,,	*	59.5	*	*	98.8	*

* Less than 10 girls in group.

TABLE 7A.—MEAN HEIGHTS AND WEIGHTS OF SCHOOLBOYS IN CONGESTED DISTRICTS, CLASSIFIED BY AGE AND SIZE OF FAMILY AT TWO PERIODS.

AGE	AUTUMN, 1946						SPRING, 1947					
	1–4 children	5–7 children	8 children and over	1–4 children	5–7 children	8 children and over	1–4 children	5–7 children	8 children and over	1–4 children	5–7 children	8 children and over
	Height in ins.			Weight in lbs.			Height in ins.			Weight in lbs.		
4 years ..	41.1	*	*	38.8	*	*	*	*	*	*	*	*
5 ,, ..	43.4	43.2	*	42.9	43.8	*	43.1	43.2	—	44.6	44.1	—
6 ,, ..	45.1	45.2	45.0	46.7	46.6	46.6	45.2	45.1	45.2	48.6	48.4	49.8
7 ,, ..	47.5	47.3	46.7	51.7	51.0	51.8	46.8	47.1	46.5	52.7	51.8	52.1
8 ,, ..	49.4	48.9	48.9	56.1	55.1	56.8	49.2	49.1	*	58.0	57.4	*
9 ,, ..	51.2	51.9	50.4	60.2	62.3	58.9	51.4	51.3	49.6	62.8	64.4	59.9
10 ,, ..	53.1	52.9	52.8	67.3	66.2	64.9	52.9	52.6	51.6	68.8	67.6	66.6
11 ,, ..	55.0	55.2	54.4	71.4	73.0	72.2	54.6	54.9	54.6	72.0	76.0	75.5
12 ,, ..	56.9	57.2	55.3	79.1	81.9	77.2	56.8	56.1	55.5	83.4	79.5	80.8
13 ,, ..	58.2	57.0	57.1	83.8	84.0	81.3	58.6	58.4	55.7	90.9	90.5	80.5
14 ,, ..	*	*	*	*	*	*	60.3	*	*	98.8	*	*

* Less than 10 boys in group.

TABLE 7B.—MEAN HEIGHTS AND WEIGHTS OF SCHOOLGIRLS IN CONGESTED DISTRICTS, CLASSIFIED BY AGE AND SIZE OF FAMILY AT TWO PERIODS.

AGE	AUTUMN, 1946						SPRING, 1947					
	1–4 children	5–7 children	8 children and over	1–4 children	5–7 children	8 children and over	1–4 children	5–7 children	8 children and over	1–4 children	5–7 children	8 children and over
	Height in ins.			Weight in lbs.			Height in ins.			Weight in lbs.		
4 years ..	37.7	*	*	37.6	*	*	*	*	—	*	*	—
5 ,, ..	42.8	42.7	*	41.9	41.1	*	42.5	43.0	*	42.1	43.3	*
6 ,, ..	44.8	44.2	*	44.5	44.1	*	44.6	44.4	*	45.9	45.7	*
7 ,, ..	46.8	47.0	46.8	48.2	49.7	48.9	46.5	46.3	*	49.9	50.3	*
8 ,, ..	49.4	49.3	48.6	54.4	56.0	54.7	48.8	49.4	49.8	55.2	57.8	59.7
9 ,, ..	51.4	50.6	52.4	59.2	58.1	62.9	50.8	51.0	50.1	61.3	60.4	59.8
10 ,, ..	52.8	52.4	53.8	63.7	62.8	68.3	52.1	52.2	52.6	65.1	66.6	69.3
11 ,, ..	54.5	54.8	54.2	71.0	69.3	68.1	54.9	53.8	54.3	73.4	69.6	71.6
12 ,, ..	57.0	56.3	56.8	78.8	76.7	77.8	55.7	56.0	55.6	78.5	77.7	80.7
13 ,, ..	58.6	57.6	58.4	85.5	83.0	88.8	59.0	58.0	59.4	90.9	86.0	95.6
14 ,, ..	59.9	*	*	96.9	*	*	*	59.5	*	*	91.5	*

* Less than 10 girls in group.

TABLE 8.—MEAN HEIGHTS AND WEIGHTS OF CERTAIN ADOLESCENT BOYS AND GIRLS IN DUBLIN, CLASSIFIED BY AGE AND OCCUPATIONAL GROUP.

AGE	BOYS						GIRLS					
	Clerical	Factory		Clerical	Factory		Clerical	Factory		Clerical	Factory	
		Selected	Un-selected		Selected	Un-selected		Selected	Un-selected		Selected	Un-selected
	Height in ins.			Weight in lbs.			Height in ins.			Weight in lbs.		
17	66.5	66.6	64.8	131.8	131.6	117.4	61.5	62.1	61.2	118.0	118.5	113.3
18	67.7	68.2	66.0	134.0	140.0	128.2	62.0	61.8	61.5	124.4	118.9	120.1
19	67.4	68.1	*	137.4	147.5	*	62.9	62.0	62.4	125.6	120.3	120.2

*Less than 10 boys in group

TABLE 9.—MEAN HEIGHTS AND WEIGHTS OF CERTAIN ADOLESCENT BOYS AND GIRLS IN DUBLIN, CLASSIFIED BY AGE AND SIZE OF FAMILY.

AGE	BOYS				GIRLS			
	1–5 children	6 children and over	1–5 children	6 children and over	1–5 children	6 children and over	1–5 children	6 children and over
	Height in ins.		Weight in lbs.		Height in ins.		Weight in lbs.	
17	66.3	66.4	131.2	129.0	62.4	61.4	119.6	116.0
18	67.8	67.6	136.9	135.8	61.7	61.9	122.5	120.7
19	67.7	67.5	142.6	142.8	62.8	62.2	121.9	122.5

TABLE 10A.—NUMBERS OF SCHOOLBOYS IN DUBLIN CITY, LARGE TOWNS AND SMALL TOWNS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unemployed			Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer or Farm Worker		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
DUBLIN CITY																		
AGE-GROUP																		
4–7 years	63	28	4	201	46	6	84	16	—	39	6	—	23	7	—	—	—	—
8–10 ,, ..	75	16	4	231	60	4	79	17	—	34	3	—	33	12	1	—	—	—
11–14 ,, ..	72	17	—	206	49	3	72	7	—	26	2	—	34	11	1	—	—	—
TOTAL ..	210	61	8	638	155	13	235	40	—	99	11	—	90	30	2	—	—	—
LARGE TOWNS																		
4– 7 years ..	34	11	—	135	49	—	81	22	—	81	17	—	7	2	—	—	—	—
8–10 ,, ..	22	13	2	95	47	3	66	32	3	89	14	—	26	8	—	—	—	—
11–14 ,, ..	23	13	2	114	57	4	83	32	—	64	16	2	32	13	1	—	—	—
TOTAL ..	79	37	4	344	153	7	230	86	3	234	47	2	65	23	1	—	—	—
SMALL TOWNS																		
4– 7 years ..	9	2	2	80	43	8	64	23	2	104	28	4	8	2	—	28	11	1
8–10 ,, ..	7	6	2	79	45	10	51	23	3	88	27	3	12	12	—	27	12	1
11–14 ,, ..	7	4	1	96	48	10	58	23	3	85	23	2	25	7	—	34	18	—
TOTAL ..	23	12	5	255	136	28	173	69	8	277	78	9	45	21	—	89	41	2

TABLE 10B.—NUMBERS OF SCHOOLGIRLS IN DUBLIN CITY, LARGE TOWNS AND SMALL TOWNS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unemployed			Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer or Farm Worker		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
DUBLIN CITY																		
AGE-GROUP																		
4– 7 years ..	78	23	2	225	44	2	73	4	—	10	—	—	18	7	—	—	—	—
8–10 ,, ..	82	34	1	200	39	3	60	14	—	12	1	—	29	7	2	—	—	—
11–14 ,, ..	86	22	1	186	30	1	85	7	—	14	3	—	51	14	—	—	—	—
TOTAL ..	246	79	4	611	113	6	218	25	—	36	4	—	98	28	2	—	—	—
LARGE TOWNS																		
4 7 years ..	17	11	—	131	44	—	85	21	—	71	15	—	7	4	—	—	—	—
8–10 ,, ..	25	9	—	126	49	9	62	21	1	39	13	1	21	7	2	—	—	—
11–14 ,, ..	22	8	—	124	48	2	75	26	—	37	12	1	30	12	1	—	—	—
TOTAL ..	64	28	—	381	141	11	222	68	1	147	40	2	58	23	3	—	—	—
SMALL TOWNS																		
4– 7 years ..	10	5	—	118	44	4	85	25	2	92	24	2	11	2	—	43	6	—
8–10 ,, ..	12	8	—	107	46	9	68	28	7	85	20	2	12	3	1	35	13	1
11–14 ,, ..	14	2	3	103	37	6	52	16	1	92	16	3	24	9	1	56	15	1
TOTAL ..	36	15	3	328	127	19	205	69	10	269	60	7	47	14	2	134	34	2

TABLE 11A—PERCENTAGE DISTRIBUTION OF SCHOOLBOYS IN DUBLIN CITY, LARGE TOWNS AND SMALL TOWNS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unemployed			Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer or Farm Worker		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
									DUBLIN CITY									
AGE-GROUP																		
4–7 years ..	66	30	4	80	18	2	84	16	—	87	13	—	77	23	—	—	—	—
8–10 ,, ..	79	17	4	78	20	2	82	18	—	92	8	—	72	26	2	—	—	—
11–14 ,, ..	81	19	—	80	19	1	91	9	—	93	7	—	74	24	2	—	—	—
All Ages ..	75	22	3	79	19	2	86	14	—	90	10	—	74	25	1	—	—	—
									LARGE TOWNS									
4–7 years ..	76	24	—	73	27	—	79	21	—	83	17	—	78	22	—	—	—	—
8–10 ,, ..	60	35	5	66	32	2	65	32	3	86	14	—	77	23	—	—	—	—
11–14 ,, ..	61	34	5	65	33	2	72	28	—	78	20	2	70	28	2	—	—	—
All Ages ..	66	31	3	68	31	1	72	27	1	83	16	1	73	26	1	—	—	—
									SMALL TOWNS									
4–7 years ..	69	16	15	61	33	6	72	26	2	76	21	3	80	20	—	70	28	2
8–10 ,, ..	47	40	13	59	34	7	66	30	4	75	23	2	50	50	—	68	30	2
11–14 ,, ..	58	33	9	62	31	7	69	27	4	77	21	2	78	22	—	65	35	—
All Ages ..	58	30	12	61	32	7	69	28	3	76	21	3	68	32	—	67	31	2

TABLE 11B.—PERCENTAGE DISTRIBUTION OF SCHOOLGIRLS IN DUBLIN CITY, LARGE TOWNS AND SMALL TOWNS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unemployed			Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer or Farm Worker		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
DUBLIN CITY																		
AGE-GROUP																		
4–7 years ..	76	22	2	83	16	1	95	5	—	100	—	—	72	28	—	—	—	—
8–10 ,, ..	70	29	1	83	16	1	81	19	—	92	8	—	76	19	5	—	—	—
11–14 years ..	79	20	1	85	14	1	92	8	—	82	18	—	78	22	—	—	—	—
All Ages	75	24	1	84	15	1	90	10	—	90	10	—	76	22	2	—	—	—
LARGE TOWNS																		
4–7 years ..	61	39	—	75	25	—	80	20	—	83	17	—	64	36	—	—	—	—
8–10 ,, ..	74	26	—	68	27	5	74	25	1	74	24	2	70	23	7	—	—	—
11–14 ,, ..	73	27	—	71	28	1	74	26	—	74	24	2	70	28	2	—	—	—
All Ages ..	70	30	—	72	26	2	76	24	0	78	21	1	69	27	4	—	—	—
SMALL TOWNS																		
4–7 years ..	67	33	—	71	27	2	76	22	2	78	20	2	85	15	—	88	12	—
8–10 ,, ..	60	40	—	66	28	6	66	27	7	79	19	2	75	19	6	71	27	2
11–14 ,, ..	74	10	16	71	25	4	75	23	2	83	14	3	71	26	3	78	21	1
All Ages ..	67	28	5	69	27	4	72	24	4	80	18	2	75	22	3	79	20	1

TABLE 12A.—NUMBERS OF SCHOOLBOYS IN AMALGAMATED TOWN AREAS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unemployed			Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer of Farm Worker		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP																		
4– 7 years ..	106	41	6	416	138	14	229	61	2	224	51	4	38	11	—	28	11	1
8–10 ,, ..	104	35	8	405	152	17	196	72	6	211	44	3	71	32	1	27	12	1
11–14 ,, ..	102	34	3	416	154	17	213	62	3	175	41	4	91	31	2	34	18	—
TOTAL ..	312	110	17	1,237	444	48	638	195	11	610	136	11	200	74	3	89	41	2

TABLE 12B.—NUMBERS OF SCHOOLGIRLS IN AMALGAMATED TOWN AREAS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unemployed			Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer or Farm Worker		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP																		
4– 7 years ..	105	39	2	474	132	6	243	50	2	173	39	2	36	13	—	43	6	—
8–10 ,, ..	119	51	1	433	134	21	190	63	8	136	34	3	62	17	5	35	35	1
11–14 ,, ..	122	32	4	413	115	9	212	49	1	143	31	4	105	35	2	56	15	1
TOTAL ..	346	122	7	1,320	381	36	645	162	11	452	104	9	203	65	7	134	34	2

TABLE 13A.—PERCENTAGE DISTRIBUTION OF SCHOOLBOYS IN AMALGAMATED TOWN AREAS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unemployed			Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer or Farm Worker		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP																		
4– 7 years ..	69	27	4	73	24	3	78	21	1	80	18	2	78	22	—	70	28	2
8–10 ,, ..	71	24	5	71	26	3	72	26	2	82	17	1	68	31	1	68	30	2
11–14 ,, ..	73	25	2	71	26	3	77	22	1	79	19	2	73	25	2	65	35	—
ALL AGES ..	71	25	4	71	26	3	76	23	1	81	18	1	72	27	1	67	31	2

TABLE 13B.—PERCENTAGE DISTRIBUTION OF SCHOOLGIRLS IN AMALGAMATED TOWN AREAS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unemployed			Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer or Farm Worker		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP																		
4– 7 years ..	72	27	1	77	22	1	82	17	1	81	18	1	73	27	—	88	12	—
8–10 ,, ..	69	30	1	74	23	3	73	24	3	78	20	2	74	20	6	71	27	2
11–14 ,, ..	77	26	3	77	21	2	81	19	0	80	18	2	74	25	1	78	21	1
ALL AGES ..	73	26	1	76	22	2	79	20	1	80	18	2	74	24	2	79	20	1

TABLE 14A.—NUMBERS OF SCHOOLBOYS IN RURAL AREAS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer (acreage up to 30 acres)			Farmer (acreage over 30 acres)		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP																		
4–7 years ..	123	40	6	25	9	—	38	6	—	8	3	—	94	38	4	79	19	2
8–10 ,, ..	128	86	9	28	9	3	44	15	3	21	7	—	137	58	8	80	36	3
11–14 ,, ..	138	45	7	19	11	1	29	8	1	40	12	1	142	38	2	92	18	1
TOTAL ..	389	171	22	72	29	4	111	29	4	69	22	1	373	134	14	251	73	6

TABLE 14B.—NUMBERS OF SCHOOLGIRLS IN RURAL AREAS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer (acreage up to 30 acres)			Farmer (acreage over 30 acres)		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP																		
4–7 years ..	110	37	1	36	4	—	57	6	—	8	4	1	101	35	1	89	20	—
8–10 ,, ..	118	59	4	31	13	—	39	11	1	22	6	1	95	40	5	84	24	—
11–14 ,, ..	101	54	5	32	4	1	37	7	—	32	14	2	139	40	7	86	20	4
TOTAL ..	329	150	10	99	21	1	133	24	1	62	24	4	335	115	13	259	64	4

TABLE 15A.—PERCENTAGE DISTRIBUTION OF SCHOOLBOYS IN RURAL AREAS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer (acreage up to 30 acres)			Farmer (acreage over 30 acres)		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP																		
4–7 years ..	73	24	3	74	26	—	86	14	—	73	27	—	69	28	3	79	19	2
8–10 ,, ..	57	39	4	70	23	7	71	24	5	75	25	—	67	29	4	67	30	3
11–14 ,, ..	72	24	4	61	36	3	76	21	3	75	23	2	78	21	1	83	16	1
ALL AGES ..	67	29	4	69	27	4	77	20	3	75	24	1	71	26	3	76	22	2

TABLE 15B.—PERCENTAGE DISTRIBUTION OF SCHOOLGIRLS IN RURAL AREAS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE FOR DIFFERENT OCCUPATIONAL GROUPS OF FATHER.

Occupational Group	Unskilled Manual Worker			Skilled Manual Worker			Lower Professional			Father Deceased			Farmer (acreage up to 30 acres)			Farmer (acreage over 30 acres)		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP																		
4–7 years ..	74	25	1	90	10	—	91	9	—	61	31	8	74	25	1	82	18	—
8–10 ,, ..	65	33	2	71	29	—	76	22	2	76	21	3	68	29	3	78	22	—
11–14 ,, ..	63	34	3	86	11	3	84	16	—	67	29	4	75	21	4	78	18	4
ALL AGES ..	67	31	2	82	17	1	84	15	1	69	27	4	72	25	3	79	20	1

TABLE 16A.—NUMBERS OF SCHOOLBOYS IN CONGESTED DISTRICTS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE AT TWO PERIODS.

Period	Autumn, 1946			Spring, 1947		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP						
4– 7 years	188	98	—	169	56	5
8–10 ,,	169	80	9	179	82	11
11–14 ,,	191	60	4	178	53	4
TOTAL	548	238	13	526	191	20

TABLE 16B.—NUMBERS OF SCHOOLGIRLS IN CONGESTED DISTRICTS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE AT TWO PERIODS.

Period	Autumn, 1946			Spring, 1947		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP						
4– 7 years	194	64	10	169	55	4
8–10 ,,	210	69	16	218	57	19
11–14 ,,	218	58	5	202	76	15
TOTAL	622	191	31	589	188	38

TABLE 17A.—PERCENTAGE DISTRIBUTION OF SCHOOLBOYS IN CONGESTED DISTRICTS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE AT TWO PERIODS.

Period	Autumn, 1946			Spring, 1947		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP						
4– 7 years ..	66	34	—	74	24	2
8–10 years ..	65	31	4	66	30	4
11–14 ,, ..	75	23	2	76	22	2
ALL AGES ..	68	30	2	71	26	3

TABLE 17B.—PERCENTAGE DISTRIBUTION OF SCHOOLGIRLS IN CONGESTED DISTRICTS, CLASSIFIED IN THREE AGE-GROUPS BY NUTRITIONAL STATE AT TWO PERIODS

Period	Autumn, 1946			Spring, 1947		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor
AGE-GROUP						
4– 7 years ..	72	24	4	74	24	2
8–10 ,, ..	71	24	5	74	19	7
11–14 ,, ..	77	21	2	69	26	5
ALL AGES ..	74	22	4	72	23	5

TABLE 18A.—NUMBERS OF SCHOOLBOYS IN THREE AGE-GROUPS IN AMALGAMATED TOWN AREAS, CLASSIFIED BY SIZE OF FAMILY, NUTRITIONAL STATE, AND OCCUPATIONAL GROUP OF FATHER, AND SHOWING THE PERCENTAGE DISTRIBUTION BY NUTRITIONAL STATE FOR THE TOTAL NUMBER IN EACH OCCUPATIONAL GROUP.

Size of Family	1–4 children			5–7 children			8 children and over			All family sizes		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
UNEMPLOYED												
AGE-GROUP												
4– 7 years	50	15	4	38	22	—	18	4	2	106	41	6
8–10 ,, ...	38	11	1	36	16	2	30	8	5	104	35	8
11–14 ,, ...	30	7	1	44	20	1	28	7	1	102	34	3
All Ages (numbers) . .	118	33	6	118	58	3	76	19	8	312	110	17
All Ages (percentages) . .	75	21	4	66	32	2	74	18	8	71	25	4
UNSKILLED MANUAL WORKER												
4– 7 years	175	64	1	155	51	8	86	23	5	416	138	14
8–10 ,, ...	128	53	8	190	54	5	87	45	4	405	152	17
11–14 ,, ...	148	47	5	161	77	5	107	30	7	416	154	17
All Ages (numbers) . .	451	164	14	506	182	18	280	98	16	1,237	444	48
All Ages (percentages) . .	72	26	2	72	26	2	71	25	4	71	26	3

SKILLED MANUAL WORKER

4– 7 years	115	28	—	77	28	1	37	5	1	229	61	2
8–10 ,, ...	79	30	3	78	28	3	39	14	—	196	72	6
11–14 ,, ...	70	22	2	100	26	1	43	14	—	213	62	3
All Ages (numbers) ..	264	80	5	255	82	5	119	33	1	638	195	11
All Ages (percentages) ..	76	23	1	75	24	1	78	21	1	76	23	1

LOWER PROFESSIONAL

4– 7 years	142	30	2	66	15	2	16	6	—	224	51	4
8–10 ,, ...	103	17	—	85	18	2	23	9	1	211	44	3
11–14 ,, ...	72	16	2	77	16	1	26	9	1	175	41	4
All Ages (numbers)	317	63	4	228	49	5	65	24	2	610	136	11
All Ages (percentages)	83	16	1	81	17	2	72	26	2	80	18	2

FATHER DECEASED

4– 7 years	17	6	—	15	4	—	6	1	—	38	11	—
8–10 ,, ...	28	11	—	21	17	1	22	4	—	71	32	1
11–14 ,, ...	41	16	1	33	15	1	17	—	—	91	31	2
All Ages (numbers) ..	86	33	1	69	36	2	45	5	—	200	74	3
All Ages (percentages) ..	72	27	1	64	34	2	90	10	—	72	27	1

TABLE 18B.—NUMBERS OF SCHOOLGIRLS IN THREE AGE-GROUPS IN AMALGAMATED TOWN AREAS, CLASSIFIED BY SIZE OF FAMILY, NUTRITIONAL STATE, AND OCCUPATIONAL GROUP OF FATHER, AND SHOWING THE PERCENTAGE DISTRIBUTION BY NUTRITIONAL STATE FOR THE TOTAL NUMBER IN EACH OCCUPATIONAL GROUP.

Size of Family	1–4 children			5–7 children			8 children and over			All family sizes		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
UNEMPLOYED												
AGE-GROUP												
4– 7 years	35	14	—	44	18	—	26	7	2	105	39	2
8–10 ,, ...	39	21	—	55	16	—	25	14	1	119	51	1
11–14 ,, ...	31	13	1	52	13	1	39	6	2	122	32	4
All Ages (numbers) ..	105	48	1	151	47	1	90	27	5	346	122	7
All Ages (percentages)	68	31	1	76	23	1	74	22	4	73	26	1
UNSKILLED MANUAL WORKER												
4– 7 years	197	47	2	196	63	3	81	22	1	474	132	6
8–10 ,, ..	140	42	6	199	64	10	94	28	5	433	134	21
11–14 ,, ...	115	39	3	171	44	4	127	32	2	413	115	9
All Ages (numbers) ..	452	128	11	566	171	17	302	82	8	1,320	381	36
All Ages (percentages) ..	76	22	2	75	23	2	77	21	2	76	22	2

SKILLED MANUAL WORKER

4– 7 years	113	24	—	82	19	2	48	7	—	243	50	2
8–10 ,, ...	77	16	3	80	34	3	33	13	2	190	63	8
11–14 ,, ...	66	18	—	88	21	1	58	10	—	212	49	1
All Ages (numbers) ..	256	58	3	250	74	6	139	30	2	645	162	11
All Ages (percentages) ..	81	18	1	76	22	2	81	18	1	79	20	1

LOWER PROFESSIONAL

4– 7 years	102	15	1	57	16	—	14	8	1	173	39	2
8–10 ,, ...	61	12	1	60	19	2	15	3	—	136	34	3
11–14 ,, ...	55	12	—	57	11	4	31	8	—	143	31	4
All Ages (numbers) ..	218	39	2	174	46	6	60	19	1	452	104	9
All Ages (percentages) ..	84	15	1	77	20	3	75	24	1	80	18	2

FATHER DECEASED

4– 7 years	21	4	—	7	8	—	8	1	—	36	13	—
8–10 ,, ...	29	6	1	24	8	2	9	3	2	62	17	5
11–14 ,, ...	51	16	—	36	15	1	18	4	1	105	35	2
All Ages (numbers) ..	101	26	1	67	31	3	35	8	3	203	65	7
All Ages (percentages)	79	20	1	66	31	3	76	17	7	74	23	3

TABLE 19A.—NUMBERS OF SCHOOLBOYS IN THREE AGE-GROUPS IN RURAL AREAS, CLASSIFIED BY SIZE OF FAMILY, NUTRITIONAL STATE, AND OCCUPATIONAL GROUP OF FATHER, AND SHOWING THE PERCENTAGE DISTRIBUTION BY NUTRITIONAL STATE FOR THE TOTAL NUMBER IN EACH OCCUPATIONAL GROUP.

Size of Family	1–4 children			5–7 children			8 children and over			All family sizes		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
MANUAL WORKER												
AGE-GROUP												
4– 7 years	53	23	3	75	19	3	20	7	—	148	49	6
8–10 ,, ...	56	33	3	62	36	4	38	26	5	156	95	12
11–14 ,, ...	54	14	4	64	25	2	39	17	2	157	56	8
All Ages (numbers) ..	163	70	10	201	80	9	97	50	7	461	200	26
All Ages (percentages) ..	67	29	4	69	28	3	63	33	4	67	29	4
FARMER												
4– 7 years	103	21	1	53	33	3	17	3	2	173	57	6
8–10 ,, ...	84	29	2	92	47	5	41	18	4	217	94	11
11–14 ,, ...	79	15	1	92	24	2	63	17	—	234	56	3
All Ages (numbers) ..	266	65	4	237	104	10	121	38	6	624	207	20
All Ages (percentages) ..	80	19	1	67	30	3	73	23	4	73	24	3

TABLE 19B.—NUMBERS OF SCHOOLGIRLS IN THREE AGE-GROUPS IN RURAL AREAS, CLASSIFIED BY SIZE OF FAMILY, NUTRITIONAL STATE, AND OCCUPATIONAL GROUP OF FATHER, AND SHOWING THE PERCENTAGE DISTRIBUTION BY NUTRITIONAL STATE FOR THE TOTAL NUMBER IN EACH OCCUPATIONAL GROUP.

Size of Family	1-4 children			5–7 children			8 children and over			All family sizes		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
MANUAL WORKER												
AGE-GROUP												
4– 7 years	73	13	1	47	19	—	26	9	—	146	41	1
8–10 ,, ...	56	15	1	65	39	1	28	18	2	149	72	4
11–14 ,, ...	53	15	1	44	20	3	36	23	2	133	58	6
All Ages (numbers) ..	182	43	3	156	78	4	90	50	4	428	171	11
All Ages (percentages) ..	80	19	1	65	33	2	62	35	3	70	28	2
FARMER												
4– 7 years ..	94	16	—	74	26	1	22	13	—	190	55	1
8–10 ,, ...	75	23	3	75	30	2	29	11	—	179	64	5
11–14 ,, ...	84	17	5	100	31	3	41	12	3	225	60	11
All Ages (numbers)	253	56	8	249	87	6	92	36	3	594	179	17
All Ages (percentages) ..	80	18	2	73	25	2	70	28	2	75	23	2

TABLE 20A.—NUMBERS OF SCHOOLBOYS IN THREE AGE-GROUPS IN CONGESTED DISTRICTS, CLASSIFIED BY SIZE OF FAMILY AND NUTRITIONAL STATE AT TWO PERIODS, AND SHOWING THE PERCENTAGE DISTRIBUTION BY NUTRITIONAL STATE FOR THE TOTAL NUMBER AT EACH PERIOD.

Size of Family	1–4 children			5–7 children			8 children and over			All family sizes		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AUTUMN, 1946												
AGE-GROUP												
4– 7 years	83	38	—	84	48	—	21	12	—	188	98	—
8–10 ,, ...	67	30	3	74	38	3	28	12	3	169	80	9
11–14 ,, ...	77	20	2	77	28	1	37	12	1	191	60	4
All Ages (numbers) ..	227	88	5	235	114	4	86	36	4	548	238	13
All Ages (percentages) ..	71	27	2	67	32	1	68	29	3	69	30	1
SPRING, 1947												
4– 7 years	80	20	2	67	29	3	22	7	—	169	56	5
8–10 ,, ...	70	37	4	84	36	7	25	9	—	179	82	11
11–14 ,, ...	63	15	2	82	26	1	33	12	1	178	53	4
All Ages (numbers) ..	213	72	8	233	91	11	80	28	1	526	191	20
All Ages (percentages) ..	73	24	3	70	27	3	73	26	1	71	26	3

TABLE 20B.—NUMBERS OF SCHOOLGIRLS IN THREE AGE-GROUPS IN CONGESTED DISTRICTS, CLASSIFIED BY SIZE OF FAMILY AND NUTRITIONAL STATE AT TWO PERIODS, AND SHOWING THE PERCENTAGE DISTRIBUTION BY NUTRITIONAL STATE FOR THE TOTAL NUMBER AT EACH PERIOD.

Size of Family	1–4 children			5–7 children			8 children and over			All family sizes		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
AUTUMN, 1946												
AGE-GROUP												
4– 7 years	114	28	3	65	30	6	15	6	1	194	64	10
8–10 ,, ...	84	22	3	86	36	11	40	11	2	210	69	16
11–14 ,, ...	82	18	4	85	28	1	51	12	—	218	58	5
All Ages (numbers) ..	280	68	10	236	94	18	106	29	3	622	191	31
All Ages (percentages) ..	78	19	3	68	27	5	77	21	2	74	22	4
SPRING, 1947												
4– 7 years	95	30	—	63	21	3	11	4	1	169	55	4
8–10 ,, ...	73	23	6	106	25	10	39	9	3	218	57	19
11–14 ,, ...	65	23	5	90	38	8	47	15	2	202	76	15
All Ages (numbers) ..	233	76	11	259	84	21	97	28	6	589	188	38
All Ages (percentages) ..	73	24	3	71	23	6	74	21	5	72	23	5

TABLE 21.—NUMBERS AND PERCENTAGES OF CERTAIN ADOLESCENT BOYS AND GIRLS IN DUBLIN, CLASSIFIED BY NUTRITIONAL STATE AND OCCUPATIONAL GROUP.

Occupational Group	BOYS									GIRLS								
	Clerical			Factory						Clerical			Factory					
				Selected			Unselected						Selected			Unselected		
Nutritional State	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
Number ..	51	12	—	101	32	—	17	9	3	110	18	—	92	27	—	71	23	4
Percentage ..	81	19	—	76	24	—	59	31	10	86	14	—	77	23	—	72	24	4

TABLE 22.—NUMBERS OF CERTAIN NURSING AND EXPECTANT MOTHERS IN DUBLIN, CLASSIFIED BY OCCUPATIONAL GROUP OF HUSBAND, PARITY AND NUTRITIONAL STATE.

Parity and Nutritional State / Occupational Group of Husband	1 or 2		3, 4 or 5		6 and over		Unknown		Total	
	Good	Fair and Poor	Good	Fair and Poor	Good	Fair and Poor	Good	Fair and Poor	Good	Fair and Poor
Unskilled Worker	39	26	36	35	39	31	28	15	142	107
Skilled Worker and Lower Professional ..	31	3	15	4	9	9	—	—	55	16
Total Numbers	70	29	51	39	48	40	28	15	197	123
Percentages	71	29	57	43	55	45	65	35	62	38

TABLE 23.—NUMBERS OF CERTAIN NURSING AND EXPECTANT MOTHERS IN DUBLIN, CLASSIFIED BY OCCUPATIONAL GROUP OF HUSBAND, SIZE OF FAMILY AND NUTRITIONAL STATE.

Size of Family and Nutritional State / Occupational Group of Husband	1, 2 or 3		4, 5 or 6		7 and over		Unknown		Total	
	Good	Fair and Poor	Good	Fair and Poor	Good	Fair and Poor	Good	Fair and Poor	Good	Fair and Poor
Unskilled Worker	19	15	40	35	28	28	55	29	142	107
Skilled Worker and Lower Professional ..	23	2	20	6	9	7	3	1	55	16
Total Numbers	42	17	60	41	37	35	58	30	197	123
Percentages	71	29	59	41	51	49	66	34	62	38

TABLE 24.—NUMBERS OF SCHOOLBOYS AND SCHOOLGIRLS IN THREE AGE-GROUPS IN AMALGAMATED TOWN AREAS, SHOWING VARIOUS CLINICAL SIGNS, CLASSIFIED BY OCCUPATIONAL GROUP OF FATHER, WITH CORRESPONDING PERCENTAGE FIGURES FOR THE TOTAL IN EACH OCCUPATIONAL GROUP.

Occupational Group of Father	Age-Group	Total Boys	BOYS—CLINICAL SIGNS									Total Girls	GIRLS—CLINICAL SIGNS								
			Gingivitis	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Excess subcutaneous fat	Mucous membrane pallor	Goitre	Evidence of rickets		Gingivitis	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Excess subcutaneous fat	Mucous membrane pallor	Goitre	Evidence of rickets
		NUMBERS																			
Unemployed	4– 7 years	153	14	12	8	12	24	1	19	—	36	146	13	11	5	13	23	1	6	2	27
	8–10 ,,	147	55	10	13	19	37	—	16	4	27	171	59	14	9	20	35	1	18	9	31
	11–14 ,,	139	67	13	8	16	30	—	18	5	24	158	66	7	4	10	18	2	17	12	26
	TOTAL	439	136	35	29	47	91	1	53	9	87	475	138	32	18	43	76	4	41	23	84
Unskilled Manual Worker	4– 7 years	568	45	45	34	59	112	2	49	8	122	612	65	27	35	47	76	10	45	5	113
	8–10 ,,	574	175	49	34	62	108	2	60	20	120	588	180	32	41	62	99	4	51	25	110
	11–14 ,,	587	262	45	49	72	123	6	77	25	127	537	199	25	35	49	52	7	62	39	59
	TOTAL	1,729	482	139	117	193	343	10	186	53	369	1,737	444	84	111	158	227	21	158	69	282

Skilled Manual Worker	4– 7 years	292	20	15	15	22	48	1	27	—	48	295	29	11	10	22	39	3	22	1	51
	8–10 ,,	274	68	22	16	25	69	—	32	10	48	261	78	16	13	27	53	1	26	5	44
	11–14 ,,	278	110	18	15	27	57	2	28	17	38	262	93	8	13	19	27	1	25	21	32
	TOTAL	844	198	55	46	74	174	3	87	27	134	818	200	35	36	68	119	5	73	27	127
Lower Professional	4– 7 years	279	12	16	17	27	42	2	14	—	43	214	10	10	16	24	20	2	12	1	30
	8–10 ,,	258	63	10	14	19	42	—	9	6	30	173	50	12	10	20	29	1	14	1	21
	11–14 ,,	220	91	17	9	18	42	1	24	8	37	178	63	13	11	21	17	4	25	14	31
	TOTAL	757	166	43	40	64	126	3	47	14	110	565	123	35	37	65	66	7	51	16	82
Father Deceased	4– 7 years	49	4	4	2	6	8	—	6	—	10	49	7	1	4	6	6	1	5	1	8
	8–10 ,,	104	35	9	4	12	26	—	8	—	28	84	22	7	10	15	12	2	8	3	21
	11–14 ,,	124	53	7	10	14	16	2	19	5	18	142	49	9	8	14	18	2	21	7	15
	TOTAL	277	92	20	16	32	50	2	33	5	56	275	78	17	22	35	36	5	34	11	44
		PERCENTAGES																			
Unemployed ..	TOTAL	100	31	8	7	11	21	0	12	2	20	100	29	7	4	9	16	1	9	5	18
Unskilled Manual Worker	,,	100	28	8	7	11	20	1	11	3	21	100	26	5	6	9	13	1	9	4	16
Skilled Manual Worker ..	,,	100	23	7	5	9	21	0	10	3	16	100	24	4	4	8	15	1	9	3	16
Lower Professional ..	,,	100	22	6	5	8	17	0	6	2	15	100	22	6	7	12	12	1	9	3	15
Father Deceased ..	,,	100	33	7	6	12	18	1	12	2	20	100	28	6	8	13	13	2	12	4	16

TABLE 25.—NUMBERS OF SCHOOLBOYS AND SCHOOLGIRLS IN THREE AGE-GROUPS IN RURAL AREAS, SHOWING VARIOUS CLINICAL SIGNS, CLASSIFIED BY OCCUPATIONAL GROUP OF FATHER, WITH CORRESPONDING PERCENTAGE FIGURES FOR THE TOTAL IN EACH OCCUPATIONAL GROUP.

Occupational Group of Father	Age-group	BOYS—CLINICAL SIGNS										GIRLS—CLINICAL SIGNS									
		Total Boys	Gingivitis	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Excess subcutaneous fat	Mucous membrane pallor	Goitre	Evidence of rickets	Total Girls	Gingivitis	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Excess subcutaneous fat	Mucous membrane pallor	Goitre	Evidence of rickets
		NUMBERS																			
Unskilled Manual Worker	4–7 years	169	16	10	16	25	21	1	6	3	37	148	15	6	15	21	14	2	10	3	22
	8–10 ,,	223	63	24	29	43	53	—	11	3	51	181	47	15	20	30	26	2	15	9	32
	11–14 ,,	190	79	12	21	29	32	—	13	7	33	160	62	20	22	32	22	2	17	9	29
	TOTAL	582	158	46	66	97	106	1	30	13	121	489	124	41	57	83	62	6	42	21	83
Skilled Manual Worker	4–7 years	34	2	1	2	3	4	—	—	—	7	40	2	4	3	5	1	—	1	—	7
	8–10 ,,	40	12	4	3	5	7	—	2	1	7	44	9	1	3	3	—	—	6	5	8
	11–14 ,,	31	16	3	3	5	10	—	1	1	5	37	13	—	5	5	4	1	1	2	1
	TOTAL	105	30	8	8	13	21	—	3	2	19	121	24	5	11	13	5	1	8	7	16
Lower Professional	4–7 years	44	1	5	1	5	2	—	1	1	5	63	2	2	3	4	4	1	2	—	5
	8–10 ,,	62	13	8	1	8	15	—	4	1	7	51	10	2	3	4	4	—	3	1	10
	11–14 ,,	38	18	5	3	7	7	—	4	—	9	44	11	2	4	3	4	1	5	6	6
	TOTAL	144	32	18	5	20	24	—	9	2	21	158	23	6	10	11	12	2	10	7	21

Farmer (up to 30 acres)	4–7 years	136	11	9	15	22	18	—	8	—	30	137	24	5	10	14	11	—	5	2	30
	8–10 ,,	203	74	13	16	20	46	—	13	5	39	140	49	6	14	19	21	1	6	2	28
	11–14 ,,	182	85	7	15	19	22	1	9	2	26	186	86	12	18	25	18	2	14	10	31
	TOTAL	521	170	29	46	61	86	1	30	7	95	463	159	23	42	58	50	3	25	14	89
Farmer (over 30 acres)	4–7 years	100	8	7	5	10	11	—	4	—	17	109	11	7	8	13	10	—	4	—	17
	8–10 ,,	119	43	5	12	15	22	—	6	—	25	108	26	3	8	11	15	1	7	1	26
	11–14 ,,	111	41	2	5	7	15	—	11	2	15	110	42	7	6	11	11	—	11	11	23
	TOTAL	330	92	14	22	32	48	—	21	2	57	327	79	17	22	35	36	1	22	12	66
Father Deceased	4–7 years	11	1	1	—	1	1	—	—	—	2	13	—	—	1	1	1	—	1	—	4
	8–10 ,,	28	8	5	4	6	6	—	1	—	2	29	10	2	3	5	2	—	2	—	4
	11–14 ,,	53	23	2	2	4	12	—	4	1	9	48	19	4	5	8	2	1	4	5	5
	TOTAL	92	32	8	6	11	19	—	5	1	13	90	29	6	9	14	5	1	7	5	13

PERCENTAGES

Unskilled Manual Worker	TOTAL	100	27	8	11	17	18	0	5	2	21	100	25	8	12	17	13	1	9	4	17
Skilled Manual Worker ..	,,	100	29	8	8	12	20	—	3	2	18	100	20	4	9	11	4	1	7	6	13
Lower Professional ..	,,	100	22	13	3	14	17	—	6	1	15	100	15	4	6	7	8	1	6	4	13
Farmer (up to 30 acres) ..	,,	100	33	6	9	12	17	0	6	1	18	100	34	5	9	13	11	1	5	3	19
Farmer (over 30 acres) ..	,,	100	28	4	7	10	15	—	6	1	17	100	24	5	7	11	11	0	7	4	20
Father Deceased ..	,,	100	35	9	7	12	21	—	5	1	14	100	32	7	10	16	6	1	8	6	14

TABLE 26.—NUMBERS OF SCHOOLBOYS AND SCHOOLGIRLS IN THREE AGE-GROUPS IN THE CONGESTED DISTRICTS AT TWO PERIODS SHOWING VARIOUS CLINICAL SIGNS, WITH CORRESPONDING PERCENTAGE FIGURES FOR THE TOTAL AT EACH PERIOD.

		BOYS—CLINICAL SIGNS										GIRLS—CLINICAL SIGNS									
PERIOD	AGE-GROUP	Total Boys	Gingivitis	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Excess subcutaneous fat	Mucous membrane pallor	Goitre	Evidence of rickets	Total Girls	Gingivitis	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Excess subcutaneous fat	Mucous membrane pallor	Goitre	Evidence of rickets
		NUMBERS																			
Autumn	4– 7 years	286	12	21	15	29	62	1	16	—	80	268	7	16	10	21	43	—	16	—	53
	8–10 ,,	258	64	17	8	17	74	—	17	—	69	295	49	20	10	26	48	1	19	—	55
	11–14 ,,	255	86	15	10	20	44	—	25	—	37	281	94	12	5	16	31	1	20	2	39
	TOTAL	799	162	53	33	66	180	1	58	—	186	844	150	48	25	63	122	2	55	2	147
Spring	4– 7 years	230	12	9	13	19	37	1	12	—	76	228	14	10	18	23	27	—	15	—	72
	8–10 ,,	272	86	20	27	37	70	—	25	—	81	294	68	22	27	40	44	5	27	—	75
	11–14 ,,	235	115	14	15	22	37	—	23	1	56	293	105	18	27	39	31	2	30	8	76
	TOTAL	737	213	43	55	78	144	1	60	1	213	815	187	50	72	102	102	7	72	8	223
		PERCENTAGES																			
Autumn ..	TOTAL	100	20	7	4	8	23	0	7	—	23	100	18	6	3	7	14	0	7	0	18
Spring ..	,,	100	29	6	7	11	20	0	8	0	29	100	23	6	9	13	13	1	9	1	27

TABLE 27.—NUMBERS AND PERCENTAGES OF ADOLESCENT BOYS AND GIRLS IN DUBLIN SHOWING VARIOUS CLINICAL SIGNS, CLASSIFIED BY OCCUPATIONAL GROUP.

Occupational Group	BOYS—CLINICAL SIGNS											GIRLS—CLINICAL SIGNS										
	Total Adolescent Boys	Folliculosis	Gingivitis	Mottled teeth	Poor posture	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Skin lacks gloss	Mucous membrane pallor	Total adolescent girls	Folliculosis	Gingivitis	Mottled teeth	Poor posture	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished subcutaneous fat	Skin lacks gloss	Mucous membrane pallor
NUMBERS																						
Clerical ..	63	1	24	1	9	4	1	10	10	9	6	128	14	36	9	10	3	7	9	8	31	12
Factory :—																						
Selected ..	133	2	60	13	20	14	12	23	15	25	11	119	8	52	16	15	4	18	20	3	20	13
Unselected ..	29	1	16	2	7	4	3	5	9	6	4	98	9	29	9	9	8	8	12	8	22	6
TOTAL	225	4	100	16	36	22	16	38	34	40	21	345	31	117	34	34	15	33	41	19	73	31
PERCENTAGES																						
Clerical ..	100	2	38	2	14	6	2	16	16	14	10	100	11	28	7	8	2	5	7	6	24	9
Factory :—																						
Selected ..	100	2	45	10	15	11	9	17	11	19	8	100	7	44	13	13	3	15	17	3	17	11
Unselected ..	100	3	55	7	24	14	10	17	31	21	14	100	9	30	9	9	8	8	12	8	22	6

TABLE 28.—NUMBERS AND PERCENTAGES OF NURSING AND EXPECTANT MOTHERS IN DUBLIN SHOWING VARIOUS CLINICAL SIGNS, CLASSIFIED BY OCCUPATIONAL GROUP OF HUSBAND.

Occupational Group of Husband	Mothers	Clinical Signs									
		Folliculosis	Gingivitis	Mottled teeth	Poor posture	Subnormal muscle development	Subnormal muscle tone	Subnormal hand grip	Diminished Sub-cutaneous fat	Skin lacks gloss	Mucous membrane pallor
						Numbers					
Unskilled Worker	249	8	132	4	29	11	21	31	71	29	29
Skilled Worker and Lower Professional	71	2	40	5	2	3	7	12	11	8	6
						Percentages					
Unskilled Worker . .	100	3	53	2	12	4	8	12	29	12	12
Skilled Worker and Lower Professional	100	3	56	7	3	4	10	17	15	11	8

DIAGRAM 1A.

Variation of Mean Height with Age among Boys in Town Areas, for Different Occupational Groups of Father.

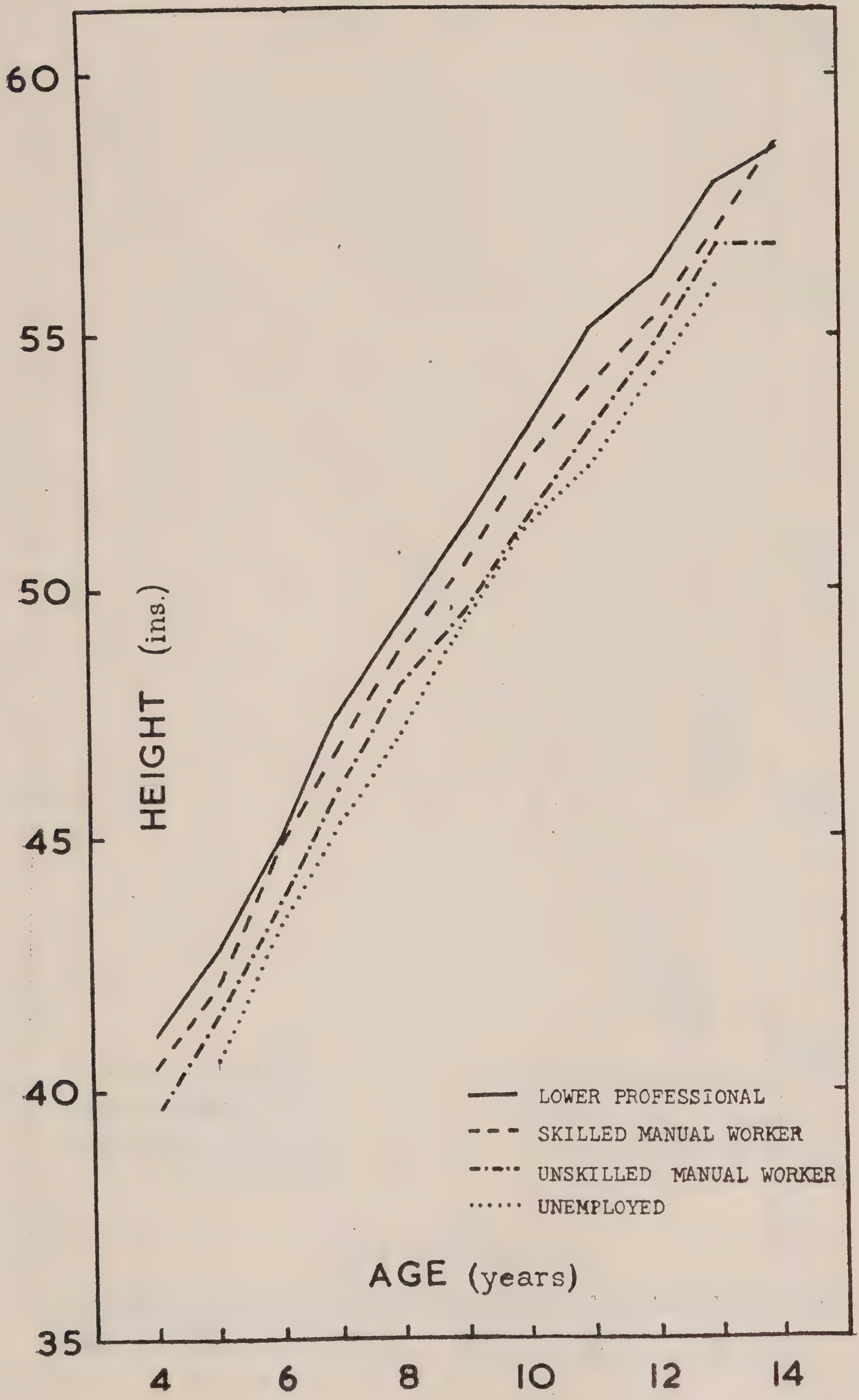


DIAGRAM IB.

Variation of Mean Height with Age among Girls in Town Areas, for Different Occupational Groups of Father.

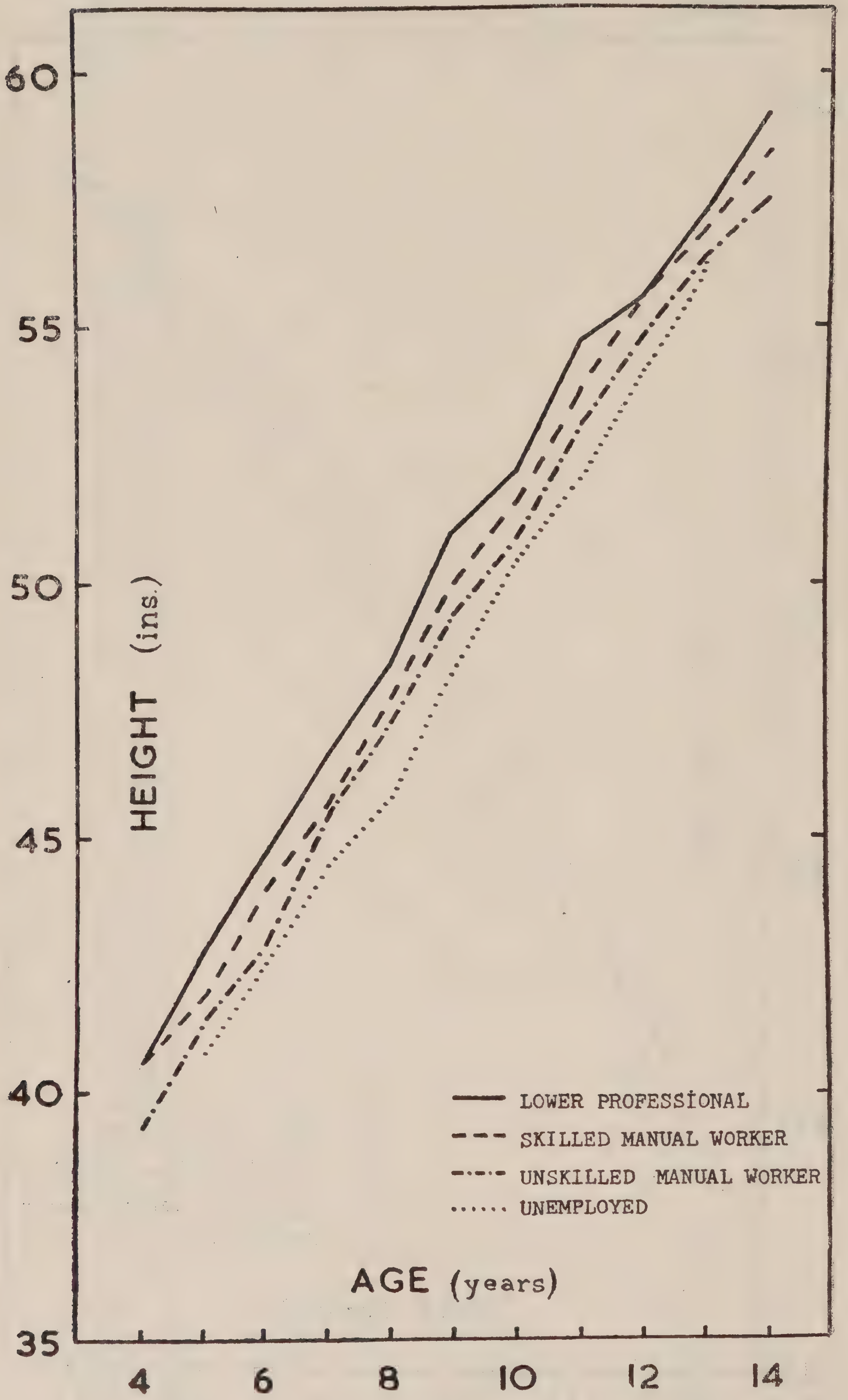


DIAGRAM IIA.

Variation of Mean Weight with Age among Boys in Town Areas, for Different Occupational Groups of Father.

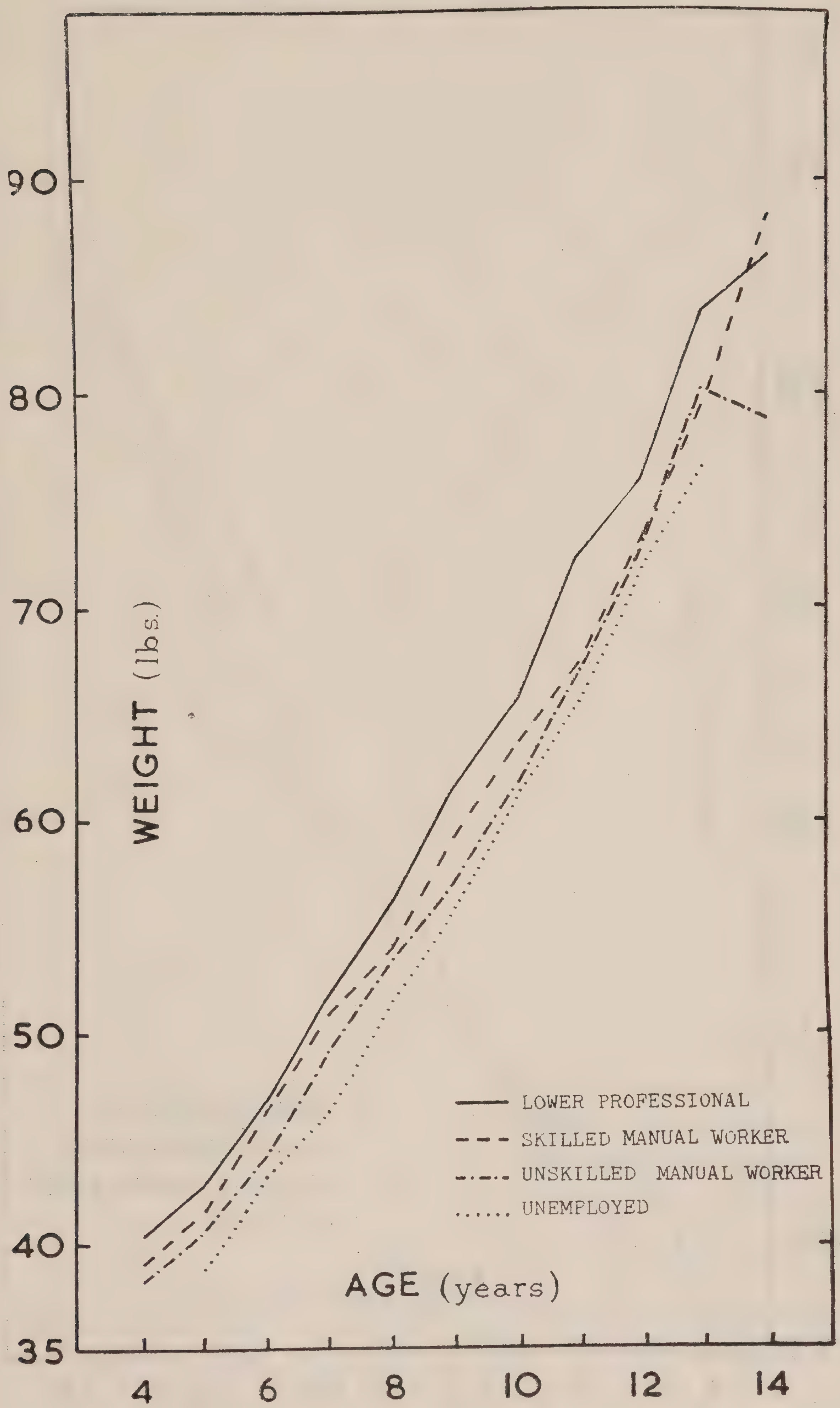


DIAGRAM IIB.

Variation of Mean Weight with Age among Girls in Town Areas, for Different Occupational Groups of Father.

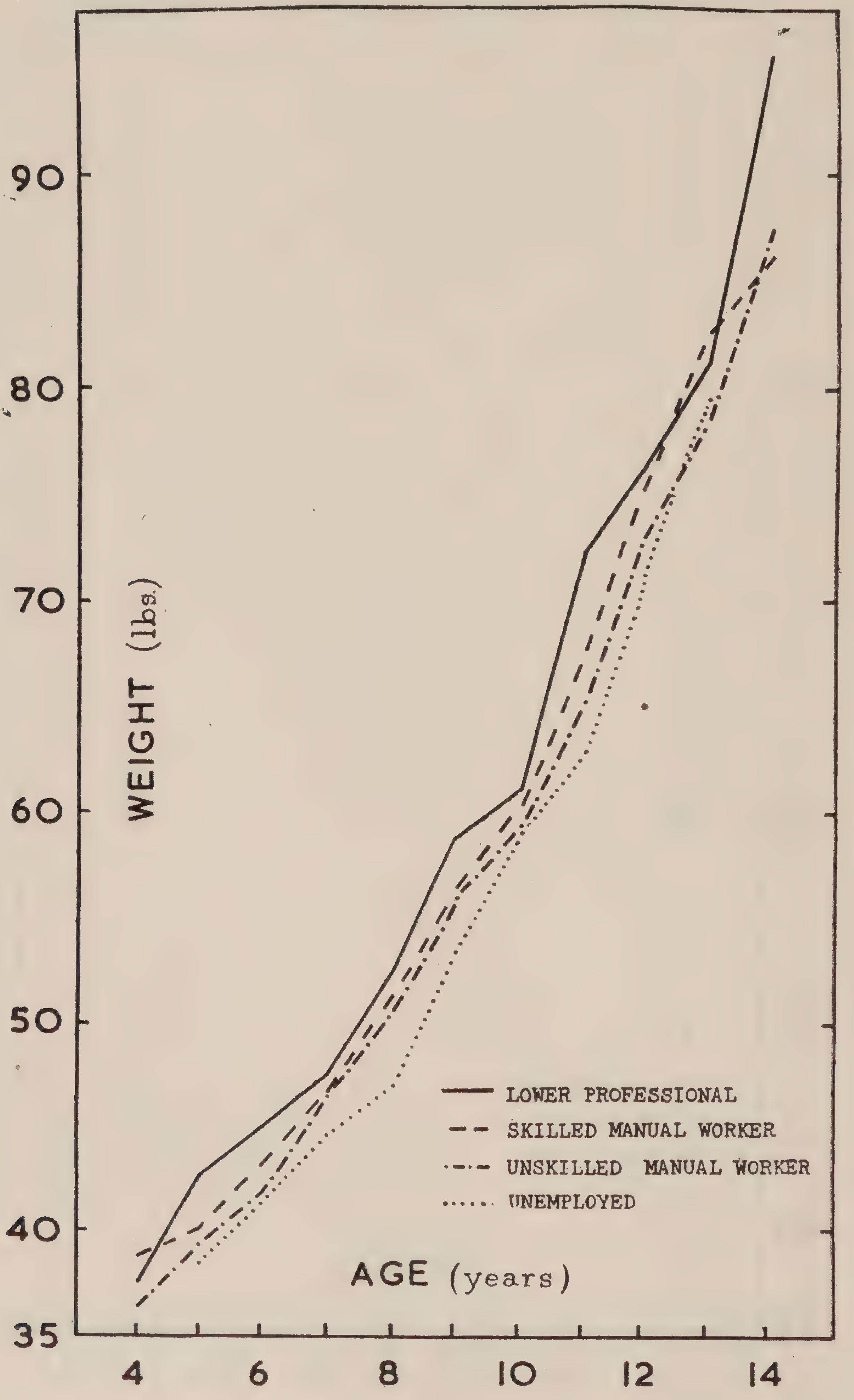


DIAGRAM IIIA.

Variation of Mean Height with Age among Boys in Rural Areas, for Different Occupational Groups of Father.

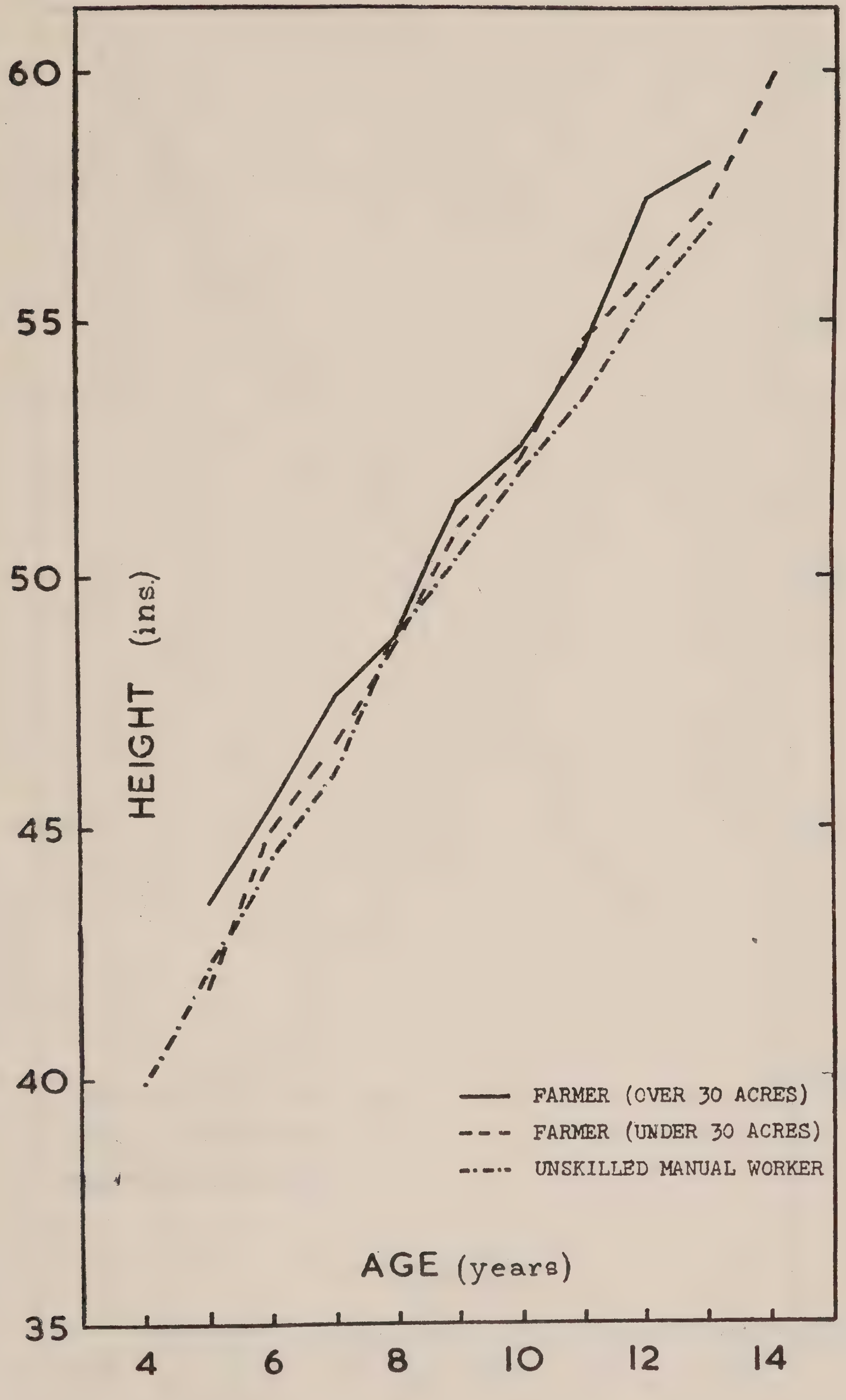


DIAGRAM IIIB.

Variation of Mean Height with Age among Girls in Rural Areas, for Different Occupational Groups of Father.

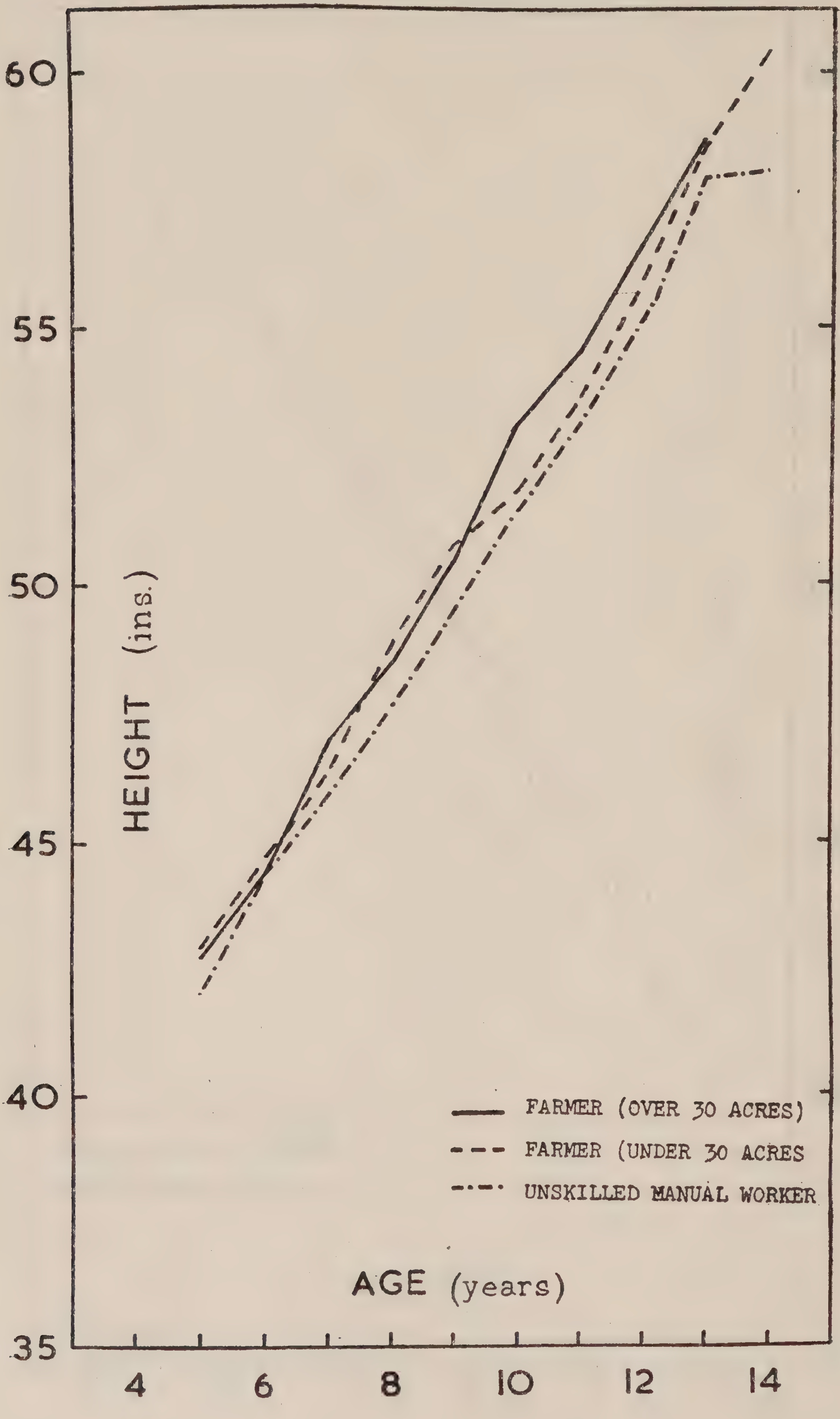


DIAGRAM IVA.

Variation of Mean Weight with Age among Boys in Rural Areas, for Different Occupational Groups of Father.

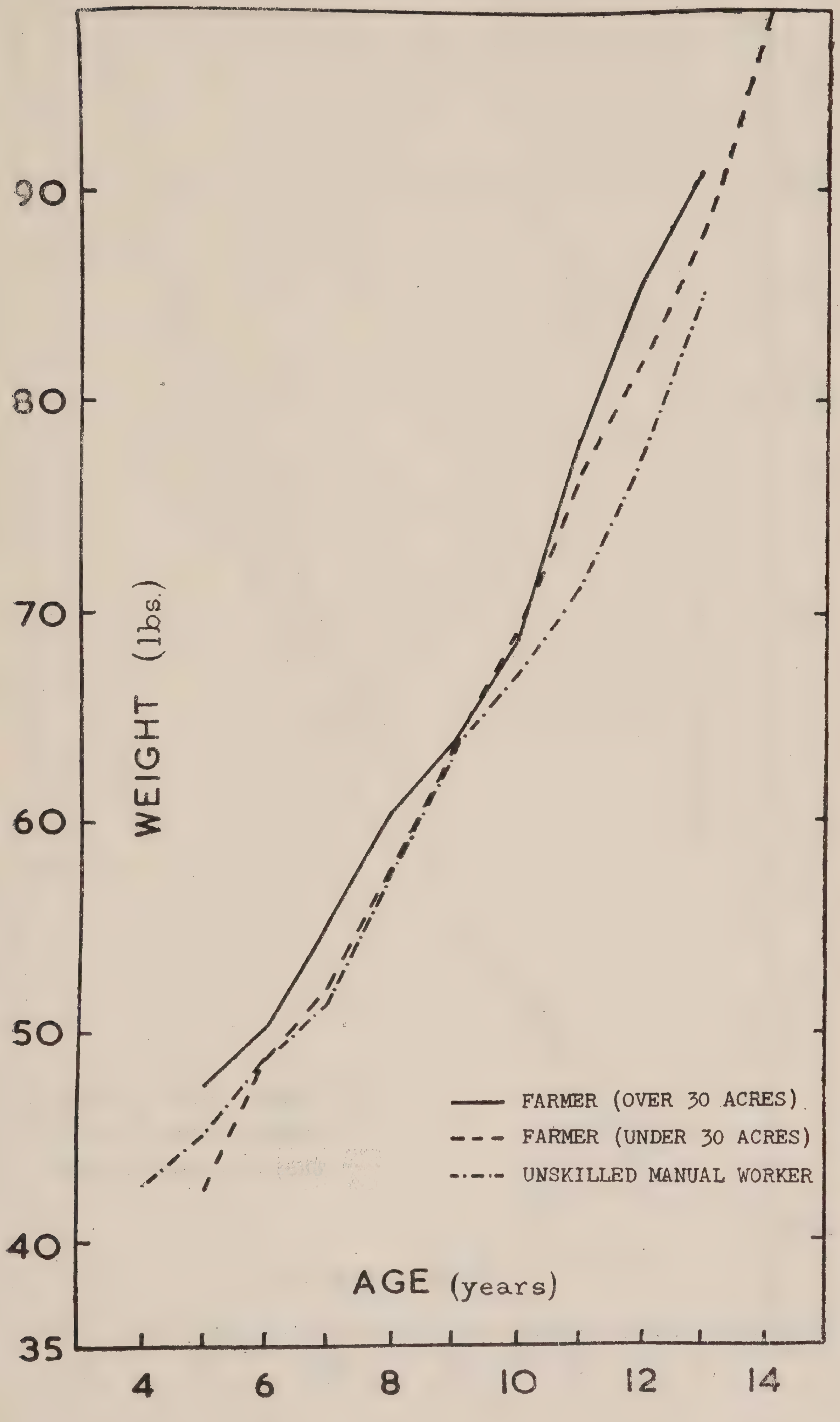


DIAGRAM IVB.

Variation of Mean Weight with Age among Girls in Rural Areas, for Different Occupational Groups of Father.

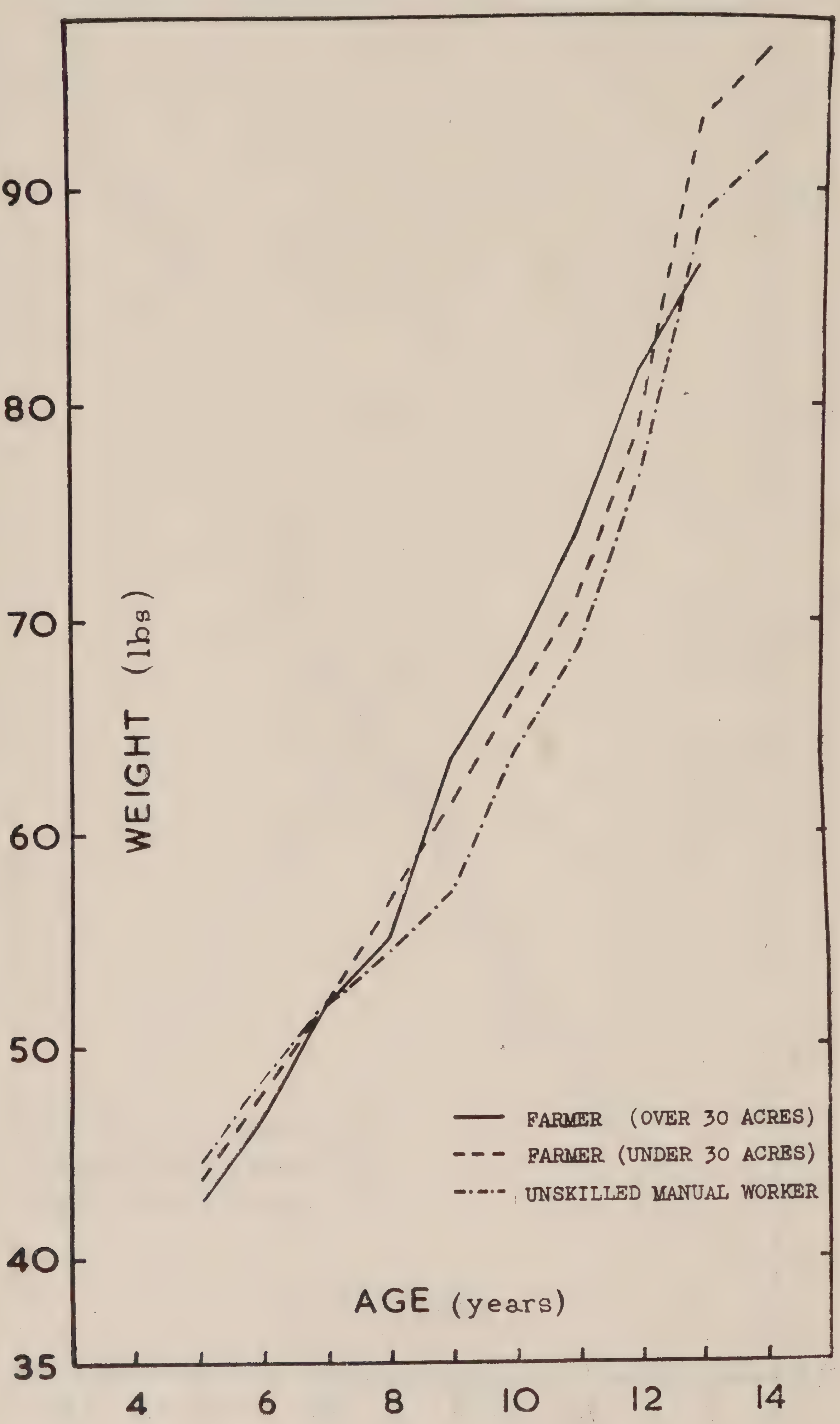


DIAGRAM VA.

Variation of Mean Height with Age among Boys whose Fathers are Unskilled Workers in Town Areas and in Rural Areas.

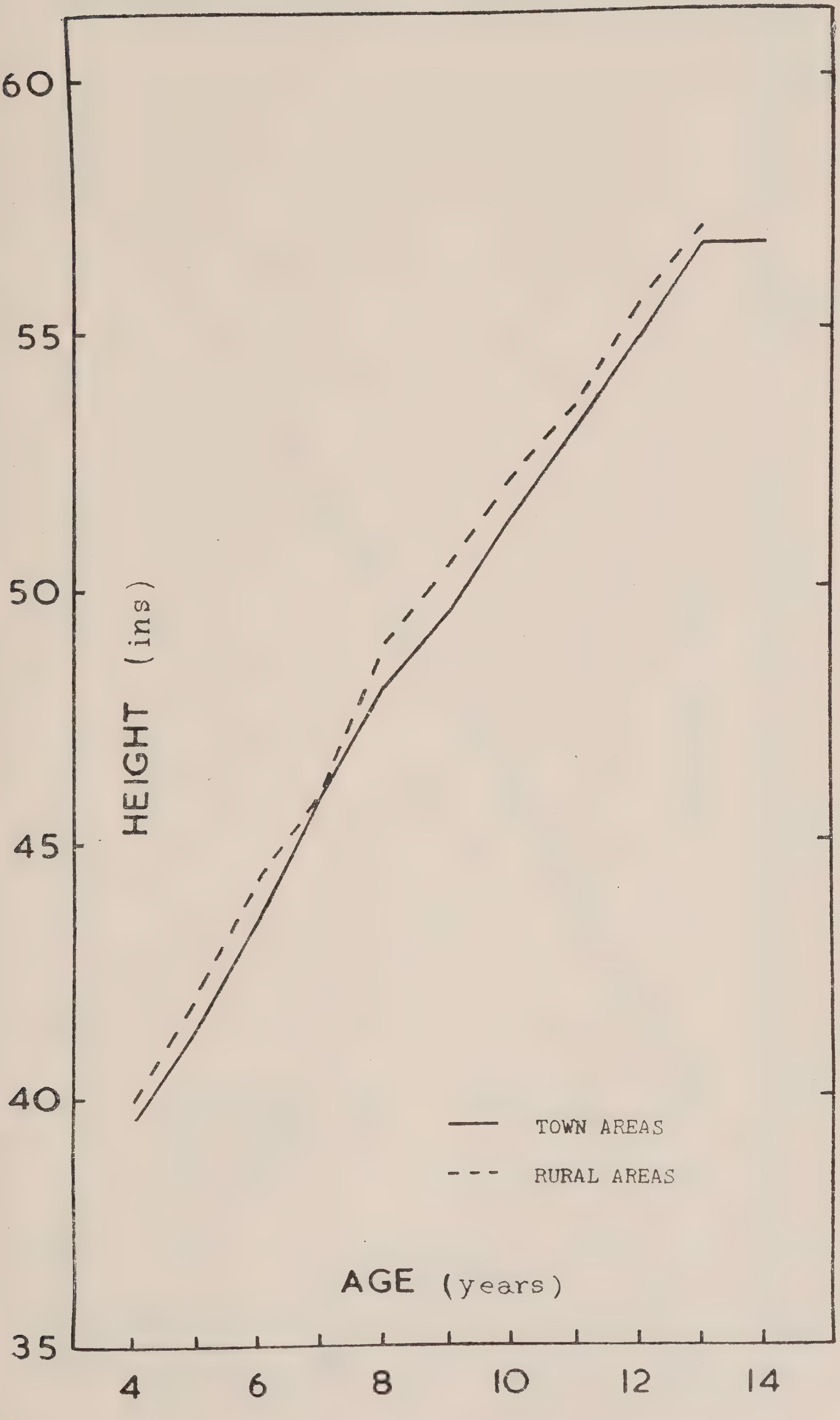


DIAGRAM VB.

VARIATION OF MEAN HEIGHT WITH AGE AMONG GIRLS WHOSE FATHERS ARE UNSKILLED MANUAL WORKERS IN TOWN AREAS AND IN RURAL AREAS.

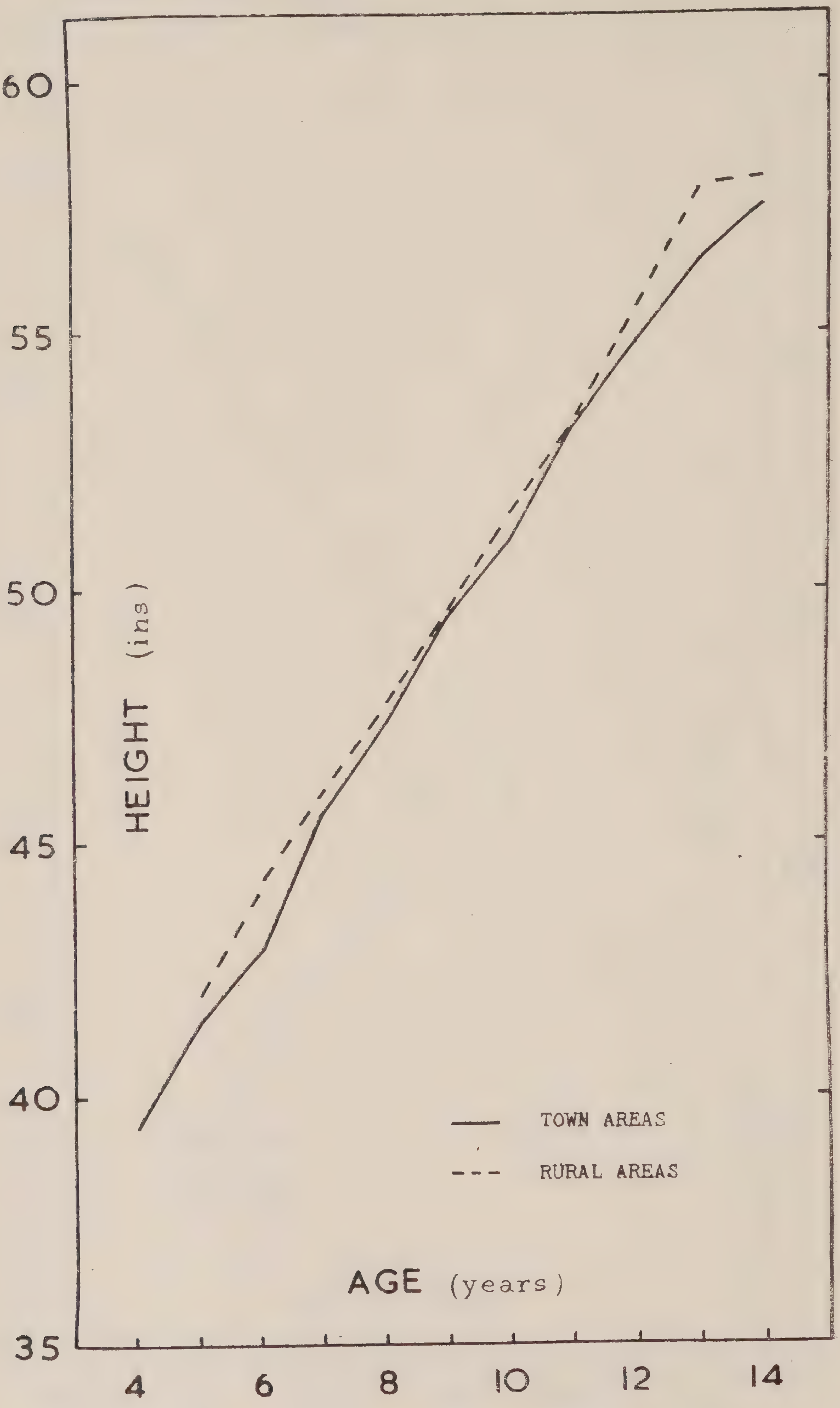


DIAGRAM VIA.

Variation of Mean Weight with Age among Boys whose Fathers are Unskilled Manual Workers in Town Areas and in Rural Areas.

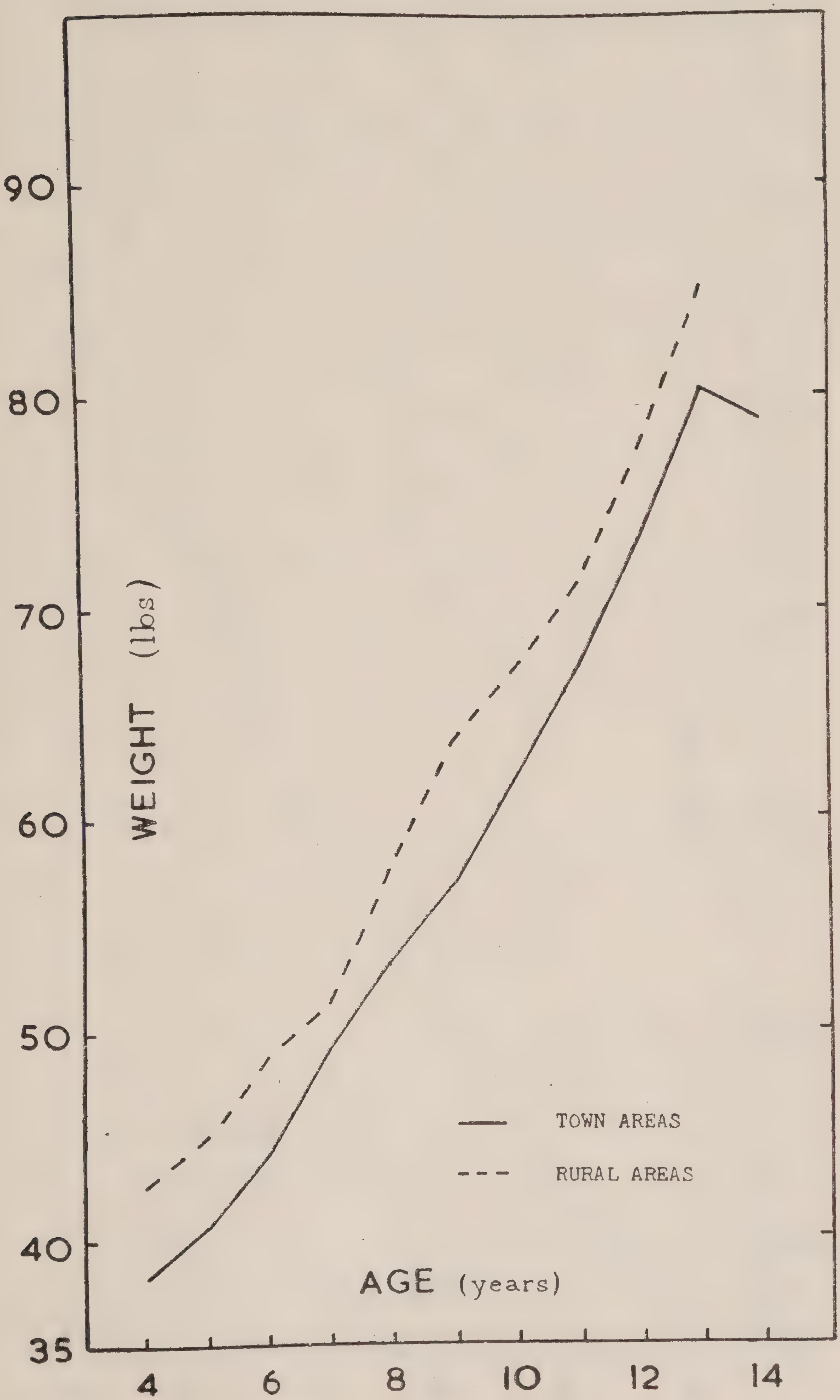
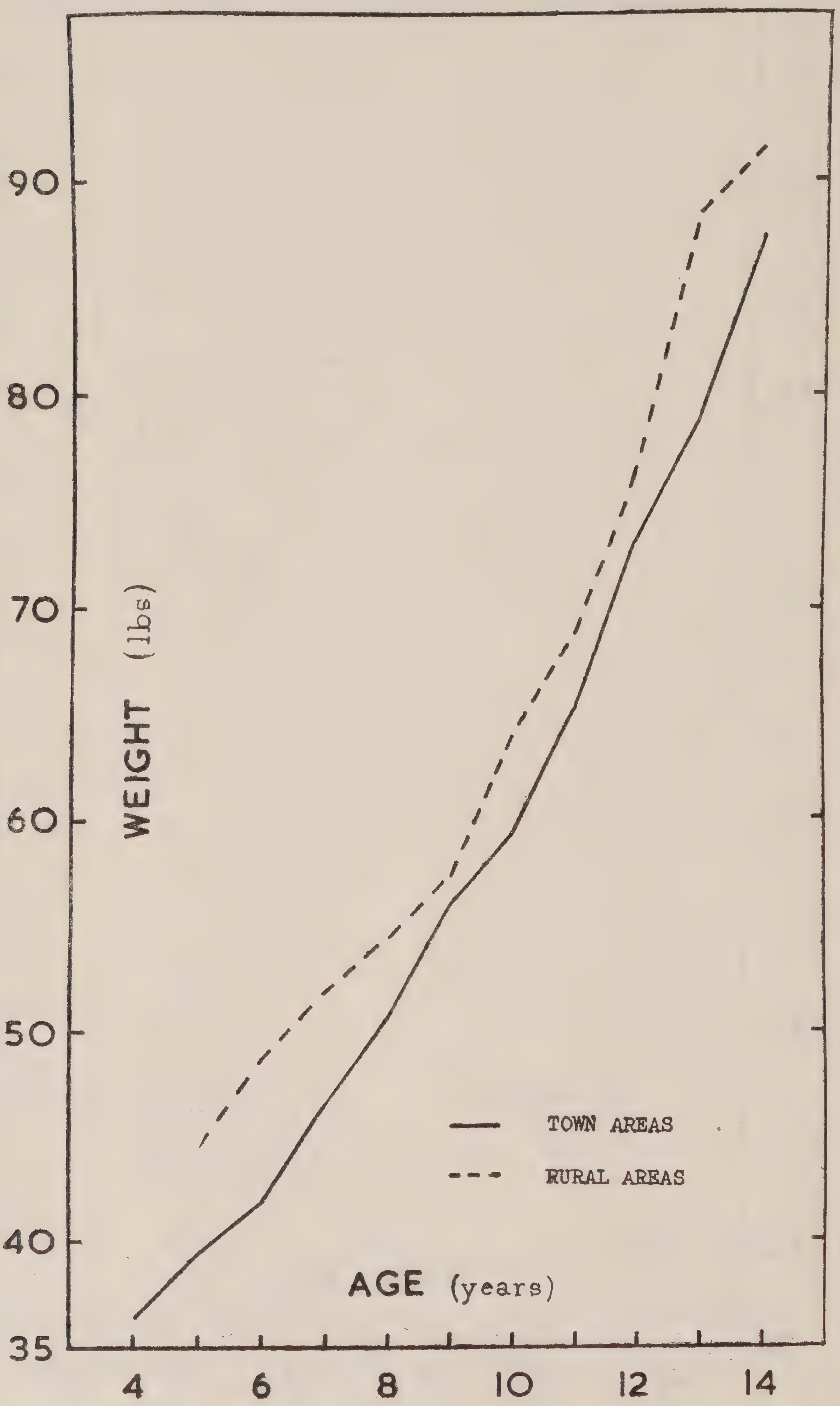


DIAGRAM VIB.

Variation of Mean Weight with Age among Girls whose Fathers are Unskilled Manual Workers in Town Areas and in Rural Areas.



STATISTICAL APPENDIX

Mean Heights and Weights of School Children Classified by Area of Residence, Occupational Group of Father and by Age and Sex.

Diagrams IA, IB ,IIA, IIB show clearly that there are significant differences in mean heights and weights between occupational groups in town areas, for in practically every case at each of the eleven ages shown the mean height and weight increase consistently in passing from the unemployed group to the lower professional group. If there are no differences between the mean heights and weights in two occupational groups in the population from which the sample was chosen, then the probability of finding, in random sampling, that the mean heights or weights in any group are lower, at each of eleven ages, than those in another group, is only $1/2^{11}$ (i.e., about 0.0005), so that the hypothesis of "no difference" is untenable in such a case. Similarly, the probability of finding mean heights or weights lower at ten out of eleven ages is about 0.005, while the probability of finding the means lower in nine cases is about 0.03. Evidently, therefore, if there are ten or eleven cases out of eleven where the mean heights or weights are lower (or higher) in one occupational group as compared with another, the differences could scarcely have arisen by chance. We may conclude that there are real differences in mean height and weight between occupational groups in town areas. Similarly, from Diagrams VA, VB, VIA, VIB, we deduce that differences in height and weight exist between town and rural areas, while Diagrams IIIA, IIIB, IVA, IVB, suggest that there are slight differences in height and weight between occupational groups in rural areas, but these differences are not as clearly defined as those observable in town areas.

The purpose of the following paragraphs, relating to standard deviations of mean heights and weights, is not to show significance between occupational groups (already discussed above), but to show how the standard deviations of the means are used to derive limits between which the true means in the population may be expected to lie, and to show how the difference between two means at any age may be tested for significance in isolation.

The standard deviation of the mean is a measure of the difference between the true mean and sample mean, which might arise due to sampling error. If the sample were large, in nineteen cases out of twenty one would expect that the true mean would lie in the range "sample mean plus or minus about twice the standard deviation." For instance, the mean weight of Dublin boys in the skilled manual worker group at age 9 years is 58.5 lbs. in the sample and the standard deviation of this mean is 1.20 lbs. ; in nineteen such cases out of twenty it would be correct to state that the population mean lies in the range 60.9 lbs. to 56.1 lbs. (i.e., $58.5 \pm$ twice 1.20). It will readily be seen that the smaller the standard deviation the more reliable is the sample mean as an estimate of the true mean. The standard deviation of the means of random samples of size N from a specified population is equal to the population standard deviation divided by $\sqrt{N}$, so that the standard deviation of the mean decreases as N increases. In practice the population standard deviation is unknown and an estimate must be obtained from the sample.

It is possible to use the standard deviations of means to test the significance of the difference between two means. Unfortunately, for relatively small differences to be classed as significant by this test, the standard deviation should be small and therefore the sample means should be based on large samples, whereas the numbers available for individual age and occupational groups in the Clinical Survey were small. Nevertheless, certain of the differences between groups can be shown to be significant.

A test for the significance of those differences consists of comparing t, where

$$t = \frac{(n_1 + n_2 - 2)}{(n_1 + n_2)} \left[\frac{(m_1 - m_2)^2 \, n_1 \, n_2}{n_1(n_1 - 1)s_1^2 + n_2(n_2 - 1)s_2^2} \right]$$

with a known value of t corresponding to probability $P = 0.05$ obtained from a set of tables. If the value of t in the tables is exceeded then the difference between means is significant at this level. In the above expression m and m_2 are the two means to be tested, s_1 and s_2 are the corresponding sample standard deviations of the means, and n_1 and n_2 are the numbers of individual items in the samples. The results of this test as applied to the two groups lower professional and unskilled manual worker are shown in the following table where † denotes significance.

TABLE I.

UNSKILLED MANUAL WORKERS AND LOWER PROFESSIONAL t TEST FOR SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS. † DENOTES SIGNIFICANCE AT 5% LEVEL AND †† DENOTES SIGNIFICANCE AT THE 1% LEVEL OF PROBABILITY.

AGE	Dublin				Large Towns				Small Towns			
	Boys		Girls		Boys		Girls		Boys		Girls	
	Weight	Height	Weight	Height	Weight	Height	Weight	Height	Weight	Height	Weight	Height
4	(a)	(a)		(a)	–	††	–	–	–	†	–	†
5	–	††	(a)		†	†	†	††	–	†	–	–
6	††	††			–	–	–	††	†	††	†	†
7	–	††			–	–	–	†	–	–	–	–
8	(a)	(a)			–	–	–	†	–	†	–	–
9	††	††			†	†	†	††	–	–	–	†
10	††	††			†	†	–	–	–	††	–	–
11	(a)	(a)			†	††	–	–	–	††	††	††
12	–	††			–	–	–	†	–	††	–	–
13	(a)	(a)			†	††	–	†	–	–	–	–
14	(a)	(a)			(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)

(a) Less than 10 boys or girls in one group.

The table shows that 43 of 92 cases are significant of which 21 are highly significant (i.e. at the 1% level of probability) which demonstrates that the differences between sample means in the two groups have not arisen by chance.

The heights and weights in the group skilled manual worker generally lie between those in the groups unskilled manual worker and lower professional and it is not possible to use the test described above to show that the differences found are significant, on account of the small numbers sampled and the relatively large standard deviations.

Nutritional State of School Children

The χ^2 test is a means of judging the credibility of a hypothesis concerning the population from which the sample is drawn. To determine whether nutritional state varies significantly with age, the hypothesis that age has no effect on nutritional state is adopted and the " expected " numbers of children in each nutritional state group are calculated on the basis of this hypothesis. The differences between these numbers and the actual numbers in the sample are clearly a measure of the credibility of the hypothesis, large differences leading to the rejection of the hypothesis. The square of the difference between the " expected " and actual number in each group is divided by the " expected " number and the sum of these numbers over all the groups is denoted by χ^2. A table of χ^2 values indicates the probability P that, in random sampling, a value of χ^2 will occur as great as or greater than the value actually obtained. If this probability is very small we conclude either that a very unlikely event has occurred or that the hypothesis is incorrect. The value of P here employed in deciding significance is 0.05. If the hypothesis were correct, values of χ^2 found should exceed the value of χ^2 for $P=0.05$ in only about 1 in 20 cases.

Nutritional State and Age.

The method of calculating χ^2 for all areas and all occupational groups together is illustrated by the following table.

TABLE II.

χ^2 ANALYSIS—NUTRITIONAL STATE BY AGE FOR ALL AREAS AND ALL OCCUPATIONAL GROUPS—BOYS.

Age	Actual			Total	Expected			Total
	Nutritional State				Nutritional State			
	Good	Fair	Poor		Good	Fair	Poor	
4- 7	1,765	582	44	2,391	1,732	603	56	2,391
8–10	1,800	720	82	2,602	1,885	656	61	2,602
11–14	1,860	585	50	2,495	1,808	628	59	2,495
TOTAL	5,425	1,887	176	7,488	5,425	1,887	176	7,488

To calculate the expected numbers the column and row totals are kept constant and the expected number 1732 is given by the product of the corresponding column and row totals divided by the tota sum (i.e., 2,391 × 5,425 ÷ 7,488). The product $(n_1 - 1)\ (n_2 - 1)$ where n and n_2 are the numbers of rows and of columns (excluding the totals), is called the number of degrees of freedom and, for the example considered $(N_1 - 1)\ (n_2 - 1) = 4$. In certain cases where the expected numbers in any age group of the poor category are small (say less than 7) it is advisable to amalgamate the fair and poor columns to eliminate the possibility of large values of X^2 arising from small numbers. In the example just considered

$$X^2 = \frac{(1765-1732)^2}{1732} + \frac{(603-582)^2}{603} + \text{etc.} = 27.05 \text{ while } X^2 \text{ for } P=0.05 \text{ is } 9.49.$$

This indicates strongly that the proportions of boys in good, fair or poor nutritional state vary with age. Since, however, all areas and all occupations have been grouped together, the variation found may be caused by variations in different occupational groups or in different areas, and it becomes necessary to examine each occupational group and each area separately to determine the effect of age on nutritional state. X^2 was, therefore, calculated for (*a*) each area, amalgamating all occupations, and (*b*) each occupation, amalgamating all areas. The results are shown in the following table.

TABLE III.

X^2 ANALYSIS—NUTRITIONAL STATE BY AGE.

Area or Occupational Group	Degeees of freedom		X^2		X_0^2 (P=0.05)		$X^2 - X_0^2$ (P=0.05)	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	Nutritional State by age—All Occupational Groups							
All Areas	4	4	27.05	33.53	9.49	9.49	†	†
Dublin	4	4	3.60	6.29	9.49	9.49	–	–
Large Towns	2	2	7.24	3.57	5.99	5.99	†	-
Small Towns	4	4	3.10	9.33	9.49	9.49	-	–
Congested Districts (autumn)	2	4	6.96	6.88	5.99	9.49	†	–
Congested Districts (spring)	4	4	7.95	9.86	9.49	9.49	–	†
Rural Areas	4	4	22.80	17.54	9.49	9.49	††	††
	Nutritional State by age—All Areas							
Unskilled Manual Worker	4	4	7.81	12.83	9.49	9.49	–	†
Skilled Manual Worker ..	4	2	7.52	12.89	9.49	5.99	–	††
Lower Professional ..	4	4	0.81	2.82	9.49	9.49	–	–
Unemployed	4	4	2.47	5.89	9.49	9.49	–	–
Father Deceased ..	4	4	2.79	4.16	9.49	9.49	–	–
*Farmer up to 30 acres ..	4	4	7.09	5.21	9.49	9.49	–	–
*Farmer over 30 acres ..	4	4	8.61	8.92	9.49	9.49	–	–
*Unskilled Manual Worker	2	2	14.59	4.93	5.99	5.99	††	–

*Rural areas only.

Significantly high values of X^2 at the 0.05 probability level are denoted by † in the last two columns of the table, while significant values at the 0.01 level of probability are denoted by ††. Considering the values of X^2 for each area, 5 out of 12 values are significant and 2 of these 5 are very highly significant. These relate to rural areas and are significant at the 0.01 level of probability (the value of χ^2 for which is 13.28). In the rural areas, therefore, the hypothesis that there is no variation in nutritional state with age is untenable, strong indications of such a variation being present. The other 3 values of χ^2 observed to be significant are not very markedly significant (all being in fact below the significant value for $P=0.01$), so that the general conclusion may be drawn that the hypothesis is tenable (i.e., age has no effect on nutritional state) in all areas except the rural areas. The values of χ^2 for each occupation confirm this, for only 2 out of 14 values are significant at the 0.05 level and neither of these is significant at the 0.01 level.

When the three main occupational groups (i.e. unskilled manual worker, farmer up to 30 acres and farmer over 30 acres) in the rural areas are tested separately, the values of χ^2 obtained are seen not to be significant, except in the case of boys whose fathers are unskilled manual workers, although very significant values of χ^2 were found for the total of all occupations : this arises from the fact that the numbers sampled were small in any one occupational group, and when the groups are amalgamated the difference in nutritional state with age is more apparent. From observation of Tables 15A and 15B it will be noted that in the three largest occupational groups (excepting girls whose fathers are unskilled manual workers) a greater proportion of the children aged 8–10 years are in fair nutritional state than is the case with other age groups. In the rural areas therefore, there is evidence that children aged 8–10 years are in poorer nutritional state than those at other ages.

Nutritional State and Sex.

An inspection of Tables 10–17 for differences between the sexes with regard to nutritional state reveals that, in the main occupational groups, girls are generally in better nutritional state than boys. The result of a χ^2 analysis, however, to test the hypothesis that girls are in better nutritional state than boys, is inconclusive.

TABLE IV.

χ^2 ANALYSIS—NUTRITIONAL STATE BY SEX.

Area or Occupational Group	Degrees of freedom	χ^2	χ^2 ($P=0.05$)	$\chi^2 - \chi_0^2$ ($P=0.05$)
	All Occupational Groups			
All Areas	2	16.22	5.99	††
Dublin	2	4.41	5.99	–
Large Towns	2	0.45	5.99	–
Small Towns	2	11.56	5.99	††
Congested Districts (autumn) ..	2	15.99	5.99	††
Congested Districts (spring) ..	2	5.21	5.99	–
Rural Areas	2	4.39	5.99	–
	All Areas			
Unskilled Manual Worker ..	2	9.69	5.99	††
Skilled Manual Worker ..	2	5.19	5.99	–
Lower Professional	2	0.31	5.99	–
Unemployed	2	5.18	5.99	–
Father Deceased	2	3.46	5.99	–
*Farmer up to 30 acres	2	0.11	5.99	–
*Farmer over 30 acres ..	2	0.95	5.99	–
*Unskilled Manual Worker ..	2	2.82	5.99	–

*Rural areas only.

Taking all areas and all occupations, χ^2 is highly significant, but a more detailed analysis reveals that in only two out of six areas χ^2 is significant, while considering occupations, χ^2 is significant in only one group, viz., unskilled manual worker. These values of χ^2 are significant at the 0.01 level of probability. Among the other groups variation in nutritional state between the sexes, if present, seems to be insignificant.

Nutritional State and Area

Table V. shows that there is no significant variation between areas among children whose fathers are dead, nor among girls in the lower professional and unemployed groups. There are, however, very marked indications of variation in nutritional state between areas for the groups unskilled manual worker and skilled manual worker and for boys in the lower professional and unemployed groups.

TABLE V.

χ^2 ANALYSIS—NUTRITIONAL STATE BY AREA.

Occupational Group	Degrees of freedom		χ^2		χ_0^2 ($P=0.05$)	$\chi^2 - \chi_0^2$ ($P=0.05$)	
	Boys	Girls	Boys	Girls		Boys	Girls
All Occupations ..	10	10	89.43	86.47	18.31	††	††
Unskilled Manual Worker	6	6	71.17	62.54	12.59	††	††
Skilled Manual Worker ..	3	3	24.20	26.85	7.82	††	††
Lower Professional ..	3	3	12.28	4.54	7.82	††	–
Unemployed ..	2	2	7.56	2.12	5.99	†	–
Father Deceased ..	3	3	0.98	2.31	7.82	–	–

Nutritional State and Occupation

Table VI. shows the χ^2 test, applied to the variations between occupational groups.

TABLE VI.

χ^2 ANALYSIS—NUTRITIONAL STATE BY OCCUPATIONAL GROUP

Area	Degrees of freedom		χ^2		χ_0^2 ($P=0.05$)	$\chi^2 - \chi_0^2$ ($P=0.05$)	
	Boys	Girls	Boys	Girls		Boys	Girls
Dublin ..	4	4	19.16	27.37	9.49	††	††
Large Towns ..	4	4	22.01	5.62	9.49	††	–
Small Towns ..	4	4	22.92	13.33	9.49	††	††
Rural Areas ..	3	3	7.20	23.40	7.82	–	††

In six out of eight cases there is a very marked degree of variation between the occupational groups.

Nutritional State and Family Size

The results of a χ^2 test to test the significance of the variations with family size in the proportions in each category of nutritional state are shown in the following table.

TABLE VII.

χ^2 ANALYSIS—NUTRITIONAL STATE BY FAMILY SIZE

Occupational Group	Degrees of freedom		χ^2		χ_0^2 ($P=0.05$)		$\chi^2-\chi_0^2$ ($P=0.05$)	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
TOWN AREAS								
All Occupations . .	4	4	9.72	7.74	9.49	9.49	†	–
Unskilled Manual Worker . .	4	4	3.38	1.80	9.49	9.49	–	–
Skilled Manual Worker . .	2	2	0.71	3.19	5.99	5.99	–	–
Lower Professional . .	2	2	5.56	5.34	5.99	5.99	–	–
Unemployed	2	2	3.94	2.67	5.99	5.99	–	–
Father Deceased	2	2	11.11	4.77	5.99	5.99	††	–
RURAL AREAS								
Manual Worker and Farmer	4	2	7.18	22.45	9.49	5.49	–	††
Manual Worker	2	2	1.81	16.58	5.99	5.99	–	††
Farmer	2	2	12.41	6.51	5.99	5.99	††	†
CONGESTED DISTRICTS								
Autumn	2	2	1.49	10.72	5.99	5.99	–	††
Spring	2	2	1.02	0.48	5.99	5.99	–	–

It is evident that, in the town areas, there is no significant variation in nutritional state with size of family. In the rural areas there is evidence of a variation in the case of all girls and of those boys whose fathers are farmers. In the Congested Districts the evidence is against any such variation with family size.

WELLCOME LIBRARY INSTITUTE

(2516)·R5757.Wt.2467/1971.3.3.1000.9/52.W.P.W.Ltd.2.

EDITOR
28 AUG 1953
BRITISH MEDICAL JOURNAL